Detailed investigation on soot particle size distribution during DPF regeneration, using standard and bio-diesel fuels

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Description
The particle number and size distribution are important aspects to qualify diesel engine emissions, considering that new limits, in term of particle number, are expected for Euro 6 regulations. In this scenario it is important to study particulate matter (PM) emissions, not only during engine normal operating mode, but also during diesel particulate filter (DPF) regeneration processes. The aim of this work is therefore to analyze PM emissions throughout the whole exhaust system of a small displacement Euro 5 common rail automotive diesel engine, during both normal operating conditions and DPF regeneration mode. Because the test engine was equipped with a close-coupled after-treatment system, featuring a Diesel Oxidation Catalyst (DOC) and a DPF integrated in a single canning, the exhaust gas was sampled at the engine outlet, at the DOC outlet, and at the DPF outlet to fully characterize the PM emissions …