

# **INVESTIGATION OF DIESEL SOOT OXIDATION PROCESS AND CATALYSTS DEGRADATION**

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Flow-reactor tools have been successfully employed by Cummins in recent years to study the performance and degradation of aftertreatment devices under well-controlled conditions. In particular, a micro-reactor system has been used to investigate reactivity of diesel soot samples collected from different engines and duty cycles under different simulated exhaust conditions. It was found that the properties and origin of the soot substantially affect its ability to be oxidized.

The discussion will include information obtained using kinetic analysis about the behavior of soot at different temperatures. Also, the reaction systems were used to obtain information about catalysts' degradation using probe reactions. The developed methodology allows us to measure the degradation and, in some cases, determine its cause.