DIESEL FUEL SULFUR EFFECTS ON THE PERFORMANCE OF LEAN NO_X CATALYSTS

Shouxian Ren
International Truck and Engine Corporation

This presentation summarizes available results of Lean-NO_x catalyst testing from the Diesel Emission Control – Sulfur Effects (DECSE) program. The testing utilizes a Cummins ISM370 and an International T444E engine and is being completed at West Virginia University's Engine and Emissions Research Center. Both high-temperature and low-temperature Lean-NO_x catalysts are employed. The supplementary diesel fuel, as reductant, is injected into the diesel exhaust prior to a Lean-NO_x catalytic converter. The impact of diesel fuel sulfur is examined through several steady-state test modes using Phillips diesel fuels containing 3, 30, 150, and 350-ppm sulfur. Sulfur in the diesel fuel is shown to impact particulate matter (PM) emissions from engines equipped with Lean-NO_x Catalysts. The ef-fect of diesel fuel sulfur on NO_x reduction and by-product formation with Lean-NO_x catalysts is discussed. Testing to characterize the fuel sulfur impact on Lean-NO_x catalyst aging (up to 250 hours) is presently being completed.