EC-DIESEL TECHNOLOGY VALIDATION PROGRAM: ROUND 2 EMISSIONS

Charles LeTavec
BP

BP has developed ultra low-sulfur diesel fuels called emission controlled diesel (EC-D) fuels, which enable the use of passive catalyzed particulate filters. The use of catalyzed particulate filters reduces particulate matter (PM), carbon monoxide, and hydrocarbon emissions from diesel engines by greater than 90 percent.

ARCO, now a BP company, is concluding a 1-year technology validation program that has evaluated the use of EC-D and catalyzed particulate filters in seven different diesel fleets operating in southern California. The BP-led program participants were the National Renewable Energy Laboratory, the California Air Resources Board (CARB), the California Energy Commission, the South Coast Air Quality Management District, Englehard, Johnson Matthey, Cummins, International Truck and Engine Company, Detroit Diesel, Ford, Corning, and NGK Locke. EC-D and catalyzed filters performance, impact on engine durability, performance, and emission characteristics were evaluated in various operations. The program has also conducted emissions testing on ARCO EC-D 1 commercial ultra low-sulfur CARB diesel.

This presentation outlines the validation program and provides emissions results from both the first and second round of emission tests. The second round of emissions testing was conducting following 1 year of operation. Several of the PM-filter equipped vehicles accumulated over 100,000 miles of operation during the 1-year demonstration. Toxic, speciation, and particle-sizing testing have also been performed. Initial results illustrate vehicles retrofitted with catalyzed particulate filters and fueled with EC-D or EC-D 1 emit 91-99 percent fewer PM, carbon monoxide, and hydrocarbons compared to the CARB-fueled vehicles having no exhaust filter equipment.