



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

AUG 11 2010

OFFICE OF  
AIR AND RADIATION

Ajay Joshi  
PM Systems Development Leader  
Johnson Matthey  
Emission Control Technologies  
380 Lapp Road  
Malvern, PA 19355

Dear Mr. Joshi:

The U.S. Environmental Protection Agency (EPA) has reviewed your request for verification of Johnson Matthey's Selective Catalytic Reduction Technology (SCRT) for on-road heavy-duty diesel engines. The Johnson Matthey SCRT combines a passive diesel particulate filter (DPF) system with a urea-based selective catalytic reduction (SCR) technology. Based on our evaluation of your verification application, test data and additional information provided, EPA hereby verifies that this technology reduces emissions of certain criteria pollutants by the percentages described in the table below.

This technology is approved for use on the following engines and/or vehicles provided all of the required operating criteria are met as described below:

On-highway, 4-cycle, non-EGR, heavy-duty diesel engines rated between 250 and 500 hp and originally manufactured from 1994 through 2002 model years.

Technology	Particulate Matter (PM) %	Carbon Monoxide (CO) %	Hydrocarbons (HC) %	Oxide of Nitrogen (NOx) %
SCRT	90	90	95	70

The following operating criteria must be met in order for appropriately retrofitted engines to achieve the aforementioned emissions reductions:

- 1) Must be operated on ULSD fuel (15 ppm).
- 2) Engine exhaust temperature must satisfy both of the following conditions: a) greater than 240°C for 40% of operation; and b) greater than 200°C for 65% of operation. As there may be significant variations from application to application, Johnson Matthey will review actual vehicle operating conditions and perform temperature data-logging prior to retrofitting a vehicle with their SCRT system to ensure compatibility.

- 3) Engine's exhaust must produce a NO<sub>x</sub>/PM ratio of at least 8, with an optimum approaching 20. (Johnson Matthey will assess the suitability of candidate engines, based upon the applicable emission standards or emission test data.)
- 4) Each installation will be equipped with a monitoring system that displays warning light(s) visible to the operator for low urea tank level, high back pressure, high inlet temperature and system abnormalities. The monitoring system will also store diagnostic error codes related to urea tank level and system malfunctions.
- 5) The vehicle shall not be equipped with a crankcase oil burning system and the engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- 6) The vehicle or equipment shall not be sold or operated in geographic areas where the urea solution may freeze (-11°C).
- 7) To ensure the appropriate urea is purchased, the customer is required to maintain urea purchase receipts and refill records and make them available to Johnson Matthey upon request. Urea usage log and mileage records will be collected and analyzed by Johnson Matthey on a biannual basis.
- 8) To ensure that urea is readily available, the system will only be offered to centrally fueled fleets that have or are planning to have urea refilling capability.

Information on the SCRT technology, percent reductions, applicable engines, and in-use testing program will be posted on the EPA's National Clean Diesel Campaign/Diesel Retrofit Verification website (<http://www.epa.gov/otag/retrofit/verif-list.htm>). As you know, Johnson Matthey will be responsible for completing the required in-use testing program and for submitting all in-use testing data to EPA.

Thank you for participating in EPA's National Clean Diesel Campaign. If you have any questions or comments, please contact Michael Geller, of my staff, at (202) 343-9295.

Sincerely,



Jim Blubaugh, Manager  
Innovative Strategies Group  
Office of Transportation and Air Quality