



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

MAR 27 2009

OFFICE OF  
AIR AND RADIATION

Mr. Kevin Brown  
Marketing & Regulatory Affairs Manager  
Engine Control Systems  
83 Commerce Valley Drive East  
Thornhill, Ontario L3T 7T3  
Canada

Dear Mr. Brown:

The U.S. Environmental Protection Agency (EPA) has reviewed your request for placement of Engine Control System's TermiNOx D, a urea-based selective catalytic reduction system, on the National Clean Diesel Campaign's Emerging Technologies List. Based on our evaluation of the application and the test plan, EPA has determined the TermiNOx D meets the requirements of the Diesel Emission Reduction Program Provisions under the Energy Policy Act of 2005 to qualify as an emerging technology. Effective from the date of this letter, TermiNOx D will qualify as an emerging technology for one year with a possible extension of an additional year. For more information on the general requirements of an emerging technology, please see Attachment A.

Based on EPA's review of the information and data provided, your technology is approved for use in Emerging Technology applications on the following categories of engines and/or vehicles provided all of the required operating criteria are met as described below:

On-highway, 4-stroke, EGR or non-EGR, heavy heavy- and medium heavy-duty diesel engines originally manufactured from 1998 through 2006 and not originally equipped with a catalyst.

The projected emission reduction levels for this technology based on the information and data provided by the manufacturer are listed in the table below. The assigned emission levels may be adjusted based on the results of verification testing.

Technology	Particulate Matter (PM) %	Carbon Monoxide (CO) %	Hydrocarbons (HC) %	Oxide of Nitrogen (NOx) %
TerminiNOx D	25	85	85	65

## Operating Criteria

- 1) Must be operated on ULSD fuel (15 ppm).
- 2) Exhaust temperature data logging will be performed before each installation, and exhaust temperatures must be above 200 degrees C for at least 50% of the normal duty cycle. As there may be significant variations from application to application, ECS will review actual vehicle operating conditions and perform temperature data-logging prior to retrofitting a vehicle with their SCR system to ensure compatibility.
- 3) Each installation will be equipped with a monitoring system that displays warning light(s) visible to the operator for low urea tank level, and system abnormalities. The monitoring system will also store diagnostic error codes related to urea tank level and system malfunctions.
- 4) 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.
- 5) The vehicle or equipment is not sold or operated in geographic areas where urea solution may freeze (-11 degrees C).
- 6) To ensure the appropriate urea is purchased, a urea quality sensor will monitor and notify the end user with driver inducement strategies if there is an incorrect urea concentration in the DEF tank.
- 7) 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.

The primary goal of the Emerging Technology program is to support early deployment of new technologies that will reduce diesel emissions from the existing fleet. This program provides an opportunity for manufacturers to obtain feedback from fleet partners on their technology while it is in-use. In addition, manufacturers are expected to pursue full EPA verification during the time frame their technology is on the Emerging Technology List.

Thank you for participating in EPA's National Clean Diesel Campaign. If you have any questions or comments, please contact Rosa Shim, of my staff, at (202) 343-9537.

Sincerely,



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

## Attachment A

The following criterion outlines the general requirements for technologies included on EPA's National Clean Diesel Campaign's Emerging Technologies List:

- The amount of time a technology may remain on the Emerging Technology List is 1 year.
- If a technology is fully verified within the first year, the technology will be added to the EPA Verified Technology List.
- A manufacturer may request an extension of up to one year to remain on the Emerging Technology List provided that the manufacturer has demonstrated to EPA it is pursuing full verification.
- If after the first year the technology has not been verified, EPA will review the status of the technology and determine if the technology qualifies for a second year. (Note: If it appears that the manufacturer has not made a significant attempt to complete verification and testing, the technology may NOT qualify for the second year).
- Once a technology is selected for use in an Emerging Technology project, that technology may be used for the entire project period even if the technology has been fully verified by EPA.
- Because an Emerging Technology is in the verification process, EPA may continue to evaluate the product, operation, and its impacts on emissions.
- Should EPA determine an Emerging Technology was misrepresented in the application, performance was not fully described, or because of concerns for safety and/or public health, at EPA's discretion, EPA may remove a technology from the Emerging Technology List, revise operating criteria, or impose other restrictions for use in Emerging Technology grant programs.
- Should a technology be removed from the Emerging Technology List without receiving verification status, that technology is no longer eligible for use on any Clean Diesel grant programs.
- The manufacturer or an authorized representative must install the technology as described to EPA and in accordance with the criteria described in the approval letter.
- Upon request, manufacturers must provide information to EPA on the installation, operation, and performance of Emerging Technologies used in Clean Diesel Grant programs.

Posting on the Emerging Technology List does not relieve the manufacturer from providing additional technical information and data to EPA. The manufacturer is expected to provide technical information upon request and to continue working with EPA and/or the California Air Resource Board (ARB) to complete the verification process.