



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

SEP 18 2014

OFFICE OF
AIR AND RADIATION

Mr. Kevin Brown
Clean Diesel Technologies, Inc
83 Commerce Valley Drive East
Thornhill, Ontario
Canada L3T 7T3

Dear Mr. Brown:

The U.S. Environmental Protection Agency (EPA) has reviewed your request for amending the Clean Diesel Technologies, Incorporated (CDTi) Purifilter EGR diesel particulate filter (DPF) verification applicable to specified 1993 to 2010 engine families. You requested to revise the duty cycle requirements and expand this verification to include additional engine families.

Based on our evaluation of the data and information submitted, EPA hereby approves the addition of the revised duty cycle requirements and the addition of engine families Mack YMKXH11.9H56 and Cummins 2CEXH0661MAT to the current verification for Clean Diesel Technology, Inc.'s Purifilter EGR diesel particulate filter for the reductions levels listed in Table 1 below. All other aspects and operating criteria of the original verification remain the same.

Table 1. Verification Listing for Purifilter EGR.

| Technology | Engine Model/Application | Fuel, Max Sulfur (ppm) | Reductions (%) | | | |
|--|---|------------------------|----------------|-----------------|----|----|
| | | | PM | NO _x | HC | CO |
| Purifilter EGR Diesel Particulate Filter (DPF) | Highway; light, medium, and heavy heavy-duty engines (EGR and non-EGR) certified in model years 1993-2010 and listed in Table A enclosed with this letter | 15 | 90 | N/A | 90 | 80 |

This technology is approved for use on the engines detailed in the enclosure, provided all of the operating criteria are met as described below:

1. As there may be variations from application to application, data logging and a review of actual vehicle operating conditions are required to ensure Purifilter EGR compatibility. The installer must provide the fleet owners and/or operators with a copy of the pre- and post-installation checklists, as well as copies of the data logging results. Fleet owners/operators shall be responsible for adhering to the recommended maintenance schedule.
2. The engine exhaust temperature must be at least 240°C for at least 30% of the time, or alternatively, 10% of vehicle duty cycle exhaust temperature must be greater than 300°C for the time the vehicle operates.
3. The engine NO_x-to-PM ratio must be greater than or equal to 18.
4. The engine must not have engine out opacity greater than 20% as measured by the SAE J1667 Recommended Practice.
5. The engine must not have been certified with an original equipment manufacturer (OEM) DPF.
6. The engine must be operated on ultra-low sulfur diesel (ULSD) fuel containing at maximum 15 ppm sulfur.
7. The engine must be operated with low-ash lubricating oil.
8. Fuel additives may not be mixed with fuel unless explicitly approved by EPA for use with this device.
9. The engine must be in proper operating condition, well maintained, and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
10. The vehicle may not be equipped with an oil burning system, and lube oil or other oils may not be mixed with the fuel.
11. CDTi installs a back-pressure monitor and logger unit and the remote driver display is visible to drivers while seated in the driver's seat.

CDTi estimates this device will incur no discernible fuel economy penalty when used in an appropriate application.

If the Purifilter EGR diesel particulate filter is modified from the application description provided to EPA and not representative of products tested for verification, you must notify EPA immediately. This verification does not automatically confer to modified devices or devices that are similar to this verification.

Information on the Purifilter EGR diesel particulate filter, percent reductions, and applicable engines with this amendment will be posted on the EPA's Verified Technology List website at: <http://www.epa.gov/cleandiesel/verification/verif-list.htm> CDTi will be responsible for adhering to in-use testing program requirements, including submission of all in-use test data to EPA, as outlined in EPA's in-use test methods.

Thank you for participating in EPA's Technology Assessment Center Verification Program. If you have any questions or comments, please contact Anthony Erb, of my staff, at (202) 343-9259.

Sincerely,



Karl Simon, Director
Transportation and Climate Division
Office of Transportation and Air Quality

Enclosure