

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER DE-08-008-02

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Section 39515 and 39516 and Executive Order G-02-003;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations (CCR):

Johnson Matthey, Incorporated
Continuously Regenerating Technology (CRT®) Particulate Filter

ARB has reviewed Johnson Matthey, Incorporated's request for verification of the CRT® Particulate Filter. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the CRT® Particulate Filter reduces emissions of diesel particulate matter (PM) consistent with a Level 3 Plus device (greater than or equal to an 85 percent reduction and meets the 2009 nitrogen dioxide emissions limit) (Title 13 CCR Sections 2702 (f) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the CRT® Particulate Filter as a Level 3 Plus system for on-road applications that use the heavy-duty engine families listed in Attachment 1.

The aforementioned verification is subject to the following terms and conditions:

- The engine must be originally manufactured from model year 1994 through 2006 and have an engine family name listed in Attachment 1.
- The engine must be used by an on-road motor vehicle with a manufacturer's Gross Vehicle Weight Rating of over 14,000 pounds.
- The engine must not be certified by ARB as having exhaust gas recirculation.
- The application must have a duty cycle with an average temperature profile greater than 240 degrees Celsius for 40 percent of the operating cycle.
- The engine must produce an oxides of nitrogen (NOx) to PM ratio of at least 8.
- The engine may or may not have a pre-existing original equipment manufacturer oxidation catalyst.

- The engine must be in its original certified configuration, except that the pre-existing oxidation catalyst from the original equipment manufacturer may be removed if the CRT[®] Particulate Filter system is installed. Should the CRT[®] Particulate Filter system be removed, the oxidation catalyst from the original equipment manufacturer must be reinstalled, returning the engine to its original certified configuration.
- The engine may not have a pre-existing diesel particulate filter.
- The engine must be certified in California for on-road applications.
- The engine must be certified at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr) and greater than 0.01 g/bhp-hr.
- The engine must be certified at a NOx or non-methane hydrocarbon plus NOx emission level above 3.2 g/bhp-hr.
- The engine must have a four-stroke combustion cycle.
- The engine may be turbocharged or naturally aspirated.
- The engine can be mechanically or electronically injected.
- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The product must not be operated with fuel additives, as defined in Section 2701 of Title 13, of the CCR, unless explicitly verified for use with the fuel additive(s).
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of the CRT[®] Particulate Filter, manufactured by Johnson Matthey, Inc. of 380 Lapp Road, Malvern, Pennsylvania 19355, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the CRT[®] Particulate Filter is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles using engines listed in Attachment 1.

This exemption is only valid provided the engines meet the aforementioned conditions.

The CRT[®] Particulate Filter consists of a diesel oxidation catalyst followed by a diesel particulate filter and a backpressure and temperature monitor with a remote display module. The major components of the CRT[®] Particulate Filter are identified in Attachment 2.

This Executive Order is valid provided that installation instructions for the CRT[®] Particulate Filter do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the CRT[®] Particulate Filter, as exempted by ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

No changes are permitted to the device. The ARB must be notified in writing of any changes to any part of the CRT[®] Particulate Filter. Any changes to the device must be evaluated and approved in writing by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the CRT[®] Particulate Filter using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior written approval is obtained from ARB.

This Executive Order shall not apply to any CRT[®] Particulate Filter advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR, Section 2706 (j)), the ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/JMI/2008/PM3+/N00/ON/DPF01

Johnson Matthey, their distributors, or installers shall review actual operating conditions prior to retrofitting an engine with the CRT[®] Particulate Filter to ensure compliance with the terms and conditions of this Executive Order.

As stated in the Procedure, Johnson Matthey, Inc. is responsible for recordkeeping requirements (section 2702), honoring the required warranty (Section 2707), and conducting in-use compliance testing (Section 2709).

This Executive Order is valid provided that the diesel fuel used in conjunction with the device complies with Title 13, CCR, sections 2281 and 2282, and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials specification D6751 applicable for 15 parts per million sulfur content;
- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282; and
- The use of biodiesel applies to devices verified to reduce only diesel PM.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this Executive Order.

In addition to the foregoing, ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, Section 2222, et seq and CCR, Title 13, Sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release Johnson Matthey, Incorporated from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

This Executive Order hereby supersedes Executive Orders DE-08-008 (dated December 30, 2008) and DE-08-008-01 (dated July 31, 2009).

Executed at El Monte, California, this 3rd day of November, 2009.

A handwritten signature in blue ink, appearing to be 'R. Cross', is written over a faint horizontal line.

Robert H. Cross, Chief
Mobile Source Control Division

Attachment 1: ARB Approved Model Year 1994 to 2006 Engine Families for the Verified CRT[®] Particulate Filter

Attachment 2: Parts List for the Verified CRT[®] Particulate Filter

Attachment 3. Labels for the Verified CRT[®] Particulate Filter