

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER DE-09-002

Pursuant to the authority vested in the California 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 39616 and Executive Order G-02-003;

This action relates 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:

Dinex Exhausts Inc
Dinex DiSiC™

ARB has reviewed Dinex Exhaust's request for verification of the Dinex DiSiC™ passive diesel 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 Dinex DiSiC™ reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reductions) (title 13, California Code of Regulations (CCR), sections 2702 (f) and (g) and section 2708) and is compliant with the 20 percent nitrogen dioxide (NO₂) emissions limit for January 1, 2009 (13 CCR, sections 2702(f), 2706(a), and 2708). Accordingly, the Executive Officer determines that this system merits verification, and subject to the terms and conditions specified below, classifies the Dinex DiSiC as a "Level 3 Plus" system for heavy-duty off-road transport refrigeration unit engines from the engine families listed in Attachment 1.

This verification is subject to the following terms and conditions:

- The engine must be diesel, four-stroke, naturally aspirated, direct, or indirect injection, and not employ exhaust gas recirculation;
- The engine must be originally manufactured from model year 1999 through 2005, having one of the engine family numbers listed in Attachment 1;
- The engine must be used in a TRU trailer application with:
 - Refrigeration temperature set point below 48 °F, or
 - Refrigeration temperature set points above 48 °F with at least 30 minutes of high-speed operation at least once per day; or
 - Engine duty cycle with an exhaust temperature profile to achieve:
 - 300 °C or above for a minimum of 3 consecutive minutes once per day and an average of 230 °C or above, or
 - 30 percent of run time above 250 °C, or
 - 15 percent of run time above 300 °C, or

- 5 percent of run time above 350 °C;
- The engine must not have a pre-existing oxidation catalyst;
- The engine must not have a pre-existing diesel particulate filter;
- The engine must be certified for off-road applications;
- The engine must be certified at a PM emission level of at most 0.45 g/bhp-hr;
- The engine must be operated on CARB ultra-low sulfur diesel fuel (less than 15 parts per million by weight) or biodiesel blends (see further fuel requirements below);
- Dinex Exhausts, their distributors, or installers shall review actual operating conditions prior to retrofitting an engine with the Dinex DiSiC™ to ensure the engine exhaust temperature and duty cycle of the application is compatible with the installation qualifications and requirements listed in the DiSiC's owners manual;
- The engine shall be well-maintained and not consume lubricating oil at a rate greater than one quart per 200 engine hours;
- Fuel consumption shall not be excessive and baseline opacity shall not exceed the limits listed in the DiSiC owners manual;
- 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 product must not be used with any other systems or engine modifications without ARB and manufacturer approval; and
- The other terms and conditions specified below.

This verification is valid provided the diesel engines that the DiSiC is installed on meet all of the terms and conditions listed above.

The Dinex DiSiC™ consists of a catalyzed silicon carbide filter substrate in a filter assembly module, inlet, outlet, exhaust tubes, flexible parts, mounting brackets, and insulation. An electronic monitoring system measures and logs exhaust temperature, backpressure, and alarms. The warning system includes a series of LED lights to provide backpressure warning for filter cleaning. These components shall be installed exactly as described in Dinex's Application for CARB Approval – Emission Control Technology from Dinex for Transport Refrigeration Units (TRU), dated January 16, 2009. The parts list for the Dinex DiSiC™ is included in Attachment 2.

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.

This Executive Order is valid provided that installation instructions for the Dinex DiSiC™ do not recommend tuning the engine to specifications different from those of the engine manufacturer.

IT IS ALSO ORDERED AND RESOLVED: That installation of the Dinex DiSiC™ manufactured by Dinex Exhausts as been found not to reduce the effectiveness of the applicable engine pollution control system, and therefore, the Dinex DiSiC™ is exempt from the prohibitions in section 27156 of the Vehicle Code for installation on the TRU engines listed in Attachment 1.

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

Changes made to the design or operating conditions of the Dinex DiSiC™, as exempted by ARB, which adversely affect the performance of the engine's pollution control system, shall invalidate this Executive Order.

No changes are permitted to the design of the Dinex DiSiC™. ARB must be notified in writing of any changes to any part of the Dinex DiSiC™. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the Dinex DiSiC™ using identification other than that shown in this Executive Order or for an application or operating conditions other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from ARB.

This Executive Order shall not apply to any Dinex DiSiC™ advertised, offered for sale, sold with, or installed on a TRU 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 (g)), ARB assigns each diesel emission control strategy a family name. The designated family name for the verification, as outlined above is:

CA/DIN/2009/PM3+/N00/OF/DPF01

As stated in the Diesel Emission Control Strategy Verification Procedure, Dinex Exhausts is responsible for recordkeeping requirements (title 13 CCR, section 2702), honoring the required warranty (section 2707), and conducting in-use compliance testing (section 2709).

In addition, ARB reserves the right in the future to review this Executive Order, 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.

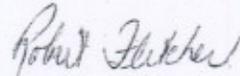
Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release Dinex Exhausts from complying with all other applicable regulations.

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

Executed at Sacramento, California, this 22nd day of May 2009.

James N. Goldstene
Executive Officer
by



Robert D. Fletcher, Chief
Stationary Source Division

- Attachment 1: Dinex DiSiC™ Engine Family List
- Attachment 2: Dinex DiSiC™ Parts List (Confidential)