

**State of California  
AIR RESOURCES BOARD**

**EXECUTIVE ORDER DE-05-006**

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 Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations

Miratech Emissions Solutions,  
CombiKat<sup>®</sup> CBS Particulate Trap

ARB has reviewed Miratech Emissions Solutions' request for verification of the CombiKat<sup>®</sup> CBS Particulate Trap diesel particulate filter (DPF). Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of the ARB hereby finds that the CombiKat<sup>®</sup> CBS Particulate Trap DPF reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reductions) (California Code of Regulations (CCR), Title 13, Sections 2702 (f) and (g) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the CombiKat<sup>®</sup> CBS Particulate Trap as a Level 3 system, for use with stationary emergency and prime generators using engine families listed in Attachment 1.

This verification is subject to the following terms and conditions:

- The engine must be used in a stationary application associated with prime or emergency standby generators.
- The engines are model years 1996 through 2006 having the engine family names listed in Attachment 1.
- The engine must be certified at a particulate matter emission level equal or less than 0.2 g/bhp-hr (as tested on an appropriate steady-state certification cycle outlined in the ARB off-road regulations – similar to ISO 8178 D2).
- The engine must be in its original certified configuration.
- The engine must not employ exhaust gas recirculation.
- 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 four-stroke.
- The engine can be turbocharged or naturally-aspirated.
- The engine must be certified in California.
- Miratech Emissions Solutions must review actual operating conditions (duty cycle, baseline emissions, exhaust temperature profiles, and engine backpressure) prior to retrofitting an engine with the CombiKat<sup>®</sup> CBS Particulate Trap to ensure compatibility.

- The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- The engines must be operated on diesel fuel that has a sulfur content of no more than 500 parts per million by weight.
- The other terms and conditions specified below.

Table 1: Conditions for the CombiKat<sup>®</sup> CBS Particulate Trap

| <b>Parameter</b>  | <b>Value</b>  |
|---|---|
| Application   | Stationary Emergency Standby and Prime Power Generation   |
| Engine Type   | Diesel, with or without turbocharger, certified to 0.2 g/bhp-hr or less of PM   |
| Minimum Exhaust Temperature for Filter Regeneration                           | The engine must operate at the load level required to achieve sufficient exhaust temperature for regeneration at the rated PM level of the engine, per Figure 1. Operation at lower temperatures is allowed, but only for a limited duration. Per Figure 1, operate in the “Passive Regeneration Okay” side of the graph for at least 30 Minutes. |
| Maximum Consecutive Minutes Operating Below Passive Regeneration Temperature  | 720 Minutes   |
| Number of Cold Start and 30 Minute Idle Sessions before Regeneration Required | 24  |
| Number of Hours of Operation Before Cleaning of Filter Required               | Application Specific. Per calculations provided below under ‘Filter Sizing’. 2000 Hours Typical.  |
| Fuel  | California on-road or off-road diesel fuel. 500-ppm limit on the sulfur content. Biodiesel is not acceptable for this verification.   |
| Verification Level  | Level 3 Verification: At least 85% reduction of PM.   |

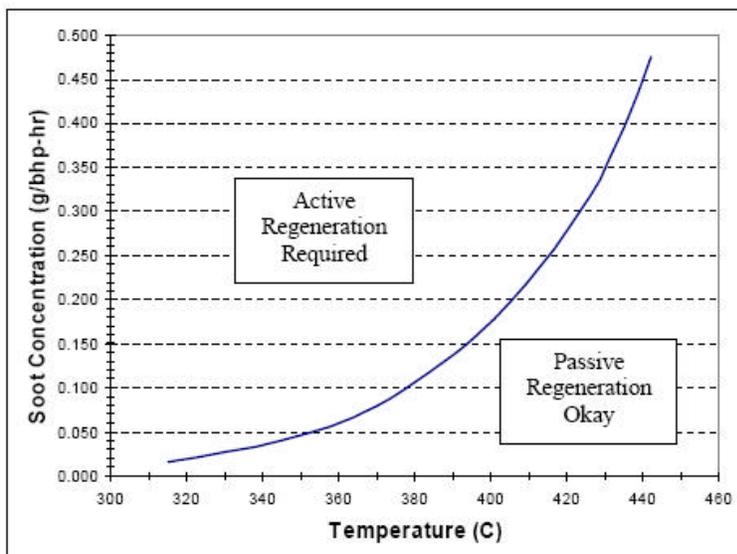


Figure 1: Passive Regeneration Temperature Requirements

The CombiKat<sup>®</sup> CBS Particulate Trap consists of a catalyzed passive diesel particulate filter and a backpressure monitor, Dwyer, Series 300 SGT Photohelic Differential Pressure Switch/Gage Transmitter.

This Executive Order is valid provided that installation instructions for CombiKat<sup>®</sup> CBS Particulate Trap do not recommend tuning the engine to specifications different from those of the engine manufacturer.

Changes made to the design or operating conditions of CombiKat<sup>®</sup> CBS Particulate Trap, 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 device. ARB must be notified in writing of any changes to any part of CombiKat<sup>®</sup> CBS Particulate Trap. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the CombiKat<sup>®</sup> CBS Particulate Trap 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 approval is obtained from ARB.

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

**CA/MES/2005/PM3/N00/ST/DPF01.**

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Miratech Emissions Solutions is responsible for honoring their warranty (California Code of Regulations (CCR), Title 13, Section 2707) and conducting in-use compliance testing (Section 2709).

In addition, ARB reserves the right in the future to review this Executive Order and verification provided herein to assure that the 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 Miratech Emissions Solutions 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 14 day of June 2006.

Catherine Witherspoon  
Executive Officer  
by

/s/

Robert Fletcher, Chief  
Stationary Source Division

Attachment 1