



**Linda S. Adams**  
Secretary for  
Environmental Protection

# Air Resources Board

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**Mary D. Nichols, Chairman**  
1001 I Street • P.O. Box 2815  
Sacramento, California 95812 • [www.arb.ca.gov](http://www.arb.ca.gov)



**Arnold Schwarzenegger**  
Governor

October 3, 2007

Mr. Octavio Solis  
Technical Sales Manager  
Vycon, Inc.  
23695 Via Del Rio  
Yorba Linda, CA 92887

Dear Mr. Solis:

The Air Resources Board (ARB) staff approves the Vycon REGEN as a Level 1 Plus verified diesel particulate matter (PM) emission control system for rubber tired gantry cranes (RTG). Level 1 Plus verification means that the system will reduce diesel particulate matter (PM) emissions by at least 25 percent, but less than 50 percent, and meets the January 2009 NO<sub>2</sub> limit. In addition, the Vycon REGEN system also reduces oxides of nitrogen (NOx) by 30 percent. This verification is valid for Tier 0 (pre-1996 model year) diesel engines or Tier 1, Tier 2, or Tier 3 certified off-road diesel engines. This verification is subject to the specific terms and conditions contained in Executive Order DE-07-006 (attached). A summary of key applicability requirements are presented in Table 1 below.

This approval is based on the results of emissions and durability testing of the Vycon REGEN system performed in accordance with the testing protocol contained in Vycon REGEN Verification Proposal.

The ARB has assigned the Vycon REGEN system the designated family name of:

**CA/VYC/2007/PM1+/N30/OFF/SYS01**

This identification number should be used to comply with the system labeling requirements. Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Vycon is responsible for honoring their warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.*

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California Environmental Protection Agency

<b>Table 1: Summary of Applicability Requirements for the Vycon REGEN System</b>	
<b>Parameter</b>	<b>Value</b>
Applications	Rubber Tyred Gantry Cranes powered by diesel generator(s)
Technology	Hybrid flywheel energy storage system
PM Verification Level	Level 1 Plus <ul style="list-style-type: none"> <li>• PM - at least 25% reduction</li> <li>• NO<sub>x</sub> – at least 30% reduction</li> <li>• NO<sub>2</sub> - meets January 2009 limit</li> </ul>
Engine Type	Diesel-fueled off-road engines, with or without a turbocharger.
Engine Model Years	Pre-1996 or Tier 1, Tier 2, or Tier 3.
Engine Horsepower	Greater than 50 hp
Fuel	California diesel fuel with less than or equal to 15 ppm sulfur or a biodiesel blend provided that the biodiesel portion of the blend complies with ASTM D6751, the diesel portion of the blend complies with Title 13 (CCR), sections 2281 and 2282, and the blend contains no more than 20 percent biodiesel by volume.
Minimum Exhaust Temperature for Filter Regeneration	NA. Hybrid flywheel energy storage system.
Maximum consecutive minutes at idle	NA.
Number of Cold Start and 30 Minute Idle Sessions before Regeneration Required	NA.
Number of Hours of Operation Before Cleaning of Filter Required	NA.
Additional terms and conditions	Executive Order DE-07-006
Approval Date	October , 2007

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Should you have any questions or comments, please contact Mr. John Lee,  
Air Resources Engineer, at (916) 327-5975.

Sincerely,

/s/

Daniel E. Donohoue, Chief  
Emission Assessment Branch  
Stationary Source Division

Attachment

cc: John Lee  
Air Resources Engineer  
Control Strategies Section