

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-280-6  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

AIRTEK, INC. (dba CATCO)  
"THREE-WAY CATALYTIC CONVERTER SERIES 10000"

WHEREAS, Vehicle Code Sections 27156 and 38391, and Title 13, California Code of Regulations (hereafter "CCR") Section 2222(h), authorize the California Air Resources Board (ARB) and its Executive Officer to exempt new aftermarket catalytic converter from the prohibitions of Vehicle Code Section 27156.

WHEREAS, AirTek, Inc. (AirTek) of 4410 W. 37<sup>th</sup> Ave, Hobart, Indiana 46342, has applied to the ARB for exemption from the prohibitions in Vehicle Code Sections 27156 and 38391 to market their aftermarket series 10000 three-way catalytic converter (TWC) for the following application, except for vehicles equipped with a catalyst monitored on-board diagnostic II (OBD-II) system:

<u>Type</u>	<u>Use</u>	<u>Series No.</u>	<u>Max. Eng. Size</u>	<u>Max. Test Veh. Wt.</u>
TWC	TWC	10000	7.4L (454 CID)	9,000 lbs.
TWC	OC	10000	7.4L (454 CID)	9,000 lbs.

WHEREAS, pursuant to the authority vested in the Executive Officer by Health and Safety Code Section 39515 and in the Chief, Mobile Source Operations Division by Health and Safety Code Section 39516 and Executive Order G-45-9, the ARB finds that the above aftermarket catalytic converter complies with the California Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h). Emission performance of the catalytic converter was based on durability mileage accumulation on the catalyst for 25,000 miles using two 1994 Ford Pickup Trucks powered by a 7.5L heavy-duty gasoline engine and AMA driving cycle (Reference Appendix IV, Title 40, part 86, Code of Federal Regulations (June 28, 1977)).

Whereas, emissions tests conducted at California Environmental Engineering (CEE), Santa Ana, California, showed the following conversion efficiencies which meet the minimum requirements for new aftermarket catalytic converters:

<u>Pollution Component</u>	<u>Catalyst Application Type</u>	
		<u>TWC</u>
HC: Min. Requirement		70%
AirTek's series 10000		75.1
CO: Min. Requirement		70
AirTek's series 10000		73.7
NOx: Min. Requirement		50
AirTek's series 10000		62.4

The oxidation catalytic converter (OC) application is included on the basis of the TWC emission tests and other tests conducted on the test catalysts.

IT IS HEREBY RESOLVED that the above catalytic converter is exempt from the prohibitions in Vehicle Code Section 27156 for installation on the approved application vehicles subject to the following conditions:

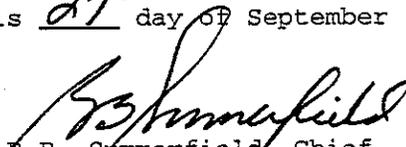
1. No changes are permitted to the catalytic converter as described in the application for exemption. Any changes to the catalytic converter or any of its components, and other factors addressed in

this order must be evaluated and approved by the ARB prior to marketing in California.

2. Marketing of the catalytic converter using identifications other than those shown in the exemption application, and in this Executive Order, or marketing of the catalytic converter for application other than the ones shown in this Executive Order shall be prohibited unless prior approval is obtained from the ARB. Exemption of this product shall not be construed as an exemption to sell, offer for sale, or advertise any components of the catalytic converter as individual devices.
3. Any oral or written references to this Executive Order or its content by AirTek, Inc.; its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that the Executive Order or the exemption it provides is not an endorsement or approval of any emission reduction claims for the catalytic converter and is only a finding that the catalytic converter is exempt from the prohibitions of Vehicle Code Section 27156.
4. AirTek, Inc. installation instructions for the new catalytic converter must conform to requirements in Paragraphs I and IX of California Evaluation Procedures for New Aftermarket Non-Original Equipment Catalytic Converters.
5. Upon installation, the catalytic converter must carry a manufacturer's warranty for 25,000 miles on the substrates and 50,000 miles or five years on the shell and end pipes.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after ten day written notice of intention to revoke it, during which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request, and the order may not be revoked until a determination is made, after the hearing, that grounds for revocation exist.

Executed at El Monte, California, this 27<sup>th</sup> day of September 1999.

  
R.B. Summerfield, Chief  
Mobile Source Operations Division

State of California  
AIR RESOURCES BOARD

EVALUATION OF AIRTEK, INC.'s SERIES 10000 NEW AFTERMARKET THREE-WAY  
CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS IN  
VEHICLE CODE SECTION 27156, AND TITLE 13, CALIFORNIA  
CODE OF REGULATIONS SECTION 2222(h)

September 1999

by

Mobile Source Division

9528 Telstar Avenue  
El Monte, CA 91731-2990

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

AirTek, Inc. (AirTek (dba Catco)) of 4410 W. 37<sup>th</sup> Avenue, Hobart, Indiana 46342, has applied for an exemption of their series 10000 new aftermarket three-way catalytic converter (TWC) from the prohibitions in Vehicle Code Sections 27156, in accordance with California regulations on new aftermarket catalytic converters. The two test catalysts were aged using two 7.5L Ford heavy-duty gasoline vehicles ballasted to 9,000 pounds (lbs.) equivalent test weight on AMA driving cycle. The substrates are of ceramic monolith type. The front and rear substrates both contain palladium and iridium in 5:1 ratio. The emission tests were conducted on a 1993 Chevrolet Pickup Truck powered by a 7.4L heavy-duty gasoline engine. The new catalytic converter may be installed on TWC, and OC vehicles powered by an engine of 7.4L or less, and having an equivalent test weight of 9,000 lbs. or less. The catalytic converter may be installed on 7.4L vehicle with a maximum gross vehicle weight (GVW) of 11,620 lbs.

Emissions data submitted by the applicant show that the catalytic converter meets the requirements of Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h) for the stated application. Based on the above, the staff recommends that the exemption be granted as requested and that Executive Order D-280-6 be issued.

CONTENTS

	<u>Page Number</u>
<u>SUMMARY</u>	i
<u>CONTENTS</u>	ii
I. <u>INTRODUCTION</u>	1
II. <u>CONCLUSION</u>	1
III. <u>RECOMMENDATION</u>	2
IV. <u>DEVICE DESCRIPTION</u>	2
V. <u>DEVICE EVALUATION</u>	2

EVALUATION OF AIRTEK, INC.'s SERIES 10000 NEW AFTERMARKET THREE-WAY CATALYTIC CONVERTER FOR EXEMPTION FROM THE PROHIBITIONS IN VEHICLE CODE SECTION 27156, AND TITLE 13, CALIFORNIA CODE OF REGULATIONS SECTION 2222(h)

I. INTRODUCTION

AirTek, Inc. (AirTek) of 4410 37<sup>th</sup> Avenue, Hobart, Indiana 46342, has applied for an exemption from the prohibitions in Vehicle Code Section 27156 for their new series 10000 aftermarket three-way catalytic converter (TWC) in accordance with California regulations on new aftermarket catalytic converters. The ceramic monolith substrates of the new catalyst were manufactured by Alchemy Catalyst, Inc., a company partially owned by AirTek. The new aftermarket catalytic converter is intended for the following vehicle applications:

<u>Converter Type</u>	<u>Converter Use</u>	<u>PN/Series</u>	<u>Max. Eng. Size</u>	<u>Max. Veh. Test Wt.</u>
TWC	TWC	10000	7.4L	9,000 lbs.
TWC	OC	10000	7.4L	9,000 lbs.

The gross vehicle weight calculated from the ballasted test vehicle was 11,620 lbs. AirTek intends to market the new TWC as a replacement for catalytic converters on applicable vehicles whose manufacturers' warranty has expired and the need for replacement of the original equipment manufacturer (OEM) catalytic converter has been established and documented, except those vehicles equipped with catalyst monitoring On-Board Diagnostic II (OBD-II) system.

II. CONCLUSION

The applicant has submitted all the required information, and based on the applicant's submitted exhaust emissions test data, the staff concludes that the new aftermarket catalyst meets the criteria set forth in Vehicle Code Section 27156, and Title 13, California Code of Regulations, Section 2222(h) for the stated application.

III. RECOMMENDATION

Staff recommends that the exemption be granted as requested and that Executive Order No. D-280-6 be issued, permitting the advertisement, sale, and installation of the new aftermarket catalyst on applicable vehicles.

IV. DEVICE DESCRIPTION

AirTek's new aftermarket TWC is designed to use two oval ceramic monolith substrates. The front and rear substrates are both coated with palladium and iridium. The dimensions of the front substrate are 5.7 inches for the major axis, 3.2 inches for the minor axis, and 5.9 for the length. The rear substrate measures 5.7 inches for the major axis, 3.2 inches for the minor axis and 3.0 inches long. The combined volume of the front and rear substrates is 135 cubic inches. The substrates are contained in outer 409 stainless steel shell with Unifrax Corporation XPE Expanding Mat, to prevent vibration and exhaust by-pass. The shell is sealed by seam weld. Aluminized heat shield is spot-welded to the upper side of the converter to protect vehicle underbody from excessive heat. The catalyst may be sold as a unit with installation instructions or may be used in customized direct fit exhaust. It is also sold with a warranty for 25,000 miles on the substrates, and five years or 50,000 miles on the container or shell, and the end pipes.

V. DEVICE EVALUATION

AirTek submitted data from testing conducted by California Environmental Engineering (CEE) laboratory, Santa Ana, California. Mileage accumulation was conducted by CEE using two 1994 Ford Pickup Trucks powered by a 7.5L heavy-duty gasoline engine. The two mileage accumulation vehicles were ballasted in order to achieve the required

equivalent test weight of 9,000 pounds. Emissions tests were conducted on a 1993 Chevrolet Pickup Truck powered by a 7.4L heavy-duty gasoline engine and equipped with a single three-way catalytic converter (TWC). The emission test vehicle was ballasted in order to conduct the testing at 9,000 pounds equivalent test weight. The limits of application of the series 10000 TWC will be 7.4L/9,000 pounds, the corresponding maximum gross vehicle weight will be 11,620 pounds. The test catalysts were labeled A and B. Testing consisted of two cold-start CVS-75 with a simulator ("dummy" catalyst), followed by two cold-start CVS-75 for each of the test catalysts. The average of the two test results for each test catalyst was used to calculate the conversion efficiency. The overall conversion efficiency for the catalyst model is the average conversion efficiency of the two test catalysts. The test results for the catalyst are shown below:

California Environmental Engineering, Santa Ana, California

<u>TWC</u>				
	<u>Simulator</u>	<u>Catalyst A</u>	<u>Catalyst B</u>	<u>Conv. Eff.</u>
	<u>Average</u>	<u>Average</u>	<u>Average</u>	<u>Average</u>
HC (g/mi)	1.710	0.440	0.412	75.1%
CO (g/mi)	22.151	5.670	5.988	73.7%
NOx (g/mi)	5.639	2.073	2.165	62.4%

The above test results meet the minimum requirements of the California regulations on new aftermarket catalytic converters. Due to time constraints, the ARB did not conduct confirmatory testing on the catalyst.