

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER A-328-9  
Relating to Certification of New Motor Vehicles

IMPCO TECHNOLOGIES, INC.

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That 1999 model-year Impco Technologies, Inc. exhaust emission control systems are certified as described below for passenger cars:

Emission Standard Category: Low-Emission Vehicle (LEV)

Fuel Type: Dual-Fuel Compressed Natural Gas (CNG) or Gasoline (Indolene)

Engine Family: XTJXV02.2023 Displacement: 2.2 Liters (134 Cubic Inches)

Exhaust Emission Control Systems & Special Features:

Three Way Catalytic Converter  
Oxygen Sensor  
Heated Oxygen Sensor  
Throttle Body Fuel Injection (CNG)  
Sequential Multiport Fuel Injection (Gasoline)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The certification exhaust emission standards for this engine family in grams per mile are: (The standards in parentheses are for gasoline.)

<u>Miles</u>	<u>Non-Methane Organic Gases</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Formaldehyde</u>	<u>Carbon Monoxide (20°F)</u>
50,000	0.075 (0.125)	3.4 (3.4)	0.2 (0.2)	0.015 (0.015)	n/a (10.0)
100,000	0.090 (0.156)	4.2 (4.2)	0.3 (0.3)	0.018 (0.018)	n/a

The CNG certification exhaust emission values set forth for non-methane organic gases (NMOG) reflect application of a reactivity adjustment factor (RAF) for CNG-fueled passenger car LEVs, and the addition of the product of the methane exhaust emission value and a RAF for methane emission of CNG-fueled passenger car LEVs.

Reactivity Adjustment Factor for NMOG Mass Emission: 0.43

Reactivity Adjustment Factor for Methane Mass Emission: 0.0047

The certification exhaust emission values for this engine family in grams per mile are: (The values in parentheses are for gasoline.)

<u>Miles</u>	<u>Non-Methane Organic Gases</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Formaldehyde</u>	<u>Carbon Monoxide (20°F)</u>
50,000	0.008 (0.066)	0.6 (1.3)	0.2 (0.1)	0.0003 (0.001)	n/a (7.1)
100,000	0.008 (0.069)	0.7 (1.7)	0.2 (0.1)	0.0004 (0.001)	n/a

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the running loss and useful life standards applicable to 1995 and subsequent model-year vehicles in the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles," and the listed vehicle models comply with those standards.

BE IT FURTHER RESOLVED: That the vehicle manufacturer is certifying the listed vehicle models to the "California Refueling Emission Standards and Test Procedures for 1998 and Subsequent Model Motor Vehicles," Title 13, California Code of Regulations, Section 1978, and the listed vehicle models comply with those standards.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" for the aforementioned model year (Title 13, California Code of Regulations, Section 2235).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high-altitude requirements and highway emission standards, and with the California Inspection and Maintenance emission standards in place at the time of certification, as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Emission Control and Smog Index Label Specifications" for the aforementioned model year (Title 13, California Code of Regulations, Section 1965).

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "Malfunction and Diagnostic System Requirements--1994 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines" (Title 13, California Code of Regulations, Section 1968.1) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2035 et seq.).

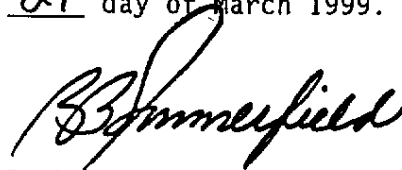
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Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 29<sup>th</sup> day of March 1999.



R. B. Summerfield, Chief  
Mobile Source Operations Division

1999 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET  
 PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: IMPCO Technologies, Inc. Exh Eng Fam: XTJXV02.2023 Evap Fam: XTJXR0124912  
 Eng Codes in Eng Fam: CA 49S 50S X AB965 ORVR: YES X NO       
 Exh Std: CA Tier-1      TLEV      LEV X ULEV      ZEV     ; US EPA LEV      X  
 Veh Class(es): PC X LDT1      LDT2      MDV1      MDV2      MDV3      MDV4      MDV5       
 Single Cert Std for Multi-Class Eng Fam: N/A (specify: N/A, LDT1, MDV1, MDV2, MDV3, MDV4)  
 Fuel Type(s): Dedicated      Flex-Fuel      Dual-Fuel X Bi-Fuel      Gasoline X Diesel       
                   CNG X LNG      LPG      M85      Other (specify)       
 Exh Emiss Test Fuel(s): Indo X CBG      CNG X LPG      M85      Other (specify)       
                                   Diesel: 13 CCR 2282      40 CFR 86.113-90      40 CFR 86.113-94       
 Service Accum: Std AMA      Mod AMA      Mfr ADP      Other (specify): ADF(CNG); C/A GM DF(GAS)  
 NMOG Test Procedure: N/A Std X Equiv      R/L Test Proc: SHED X Pt Source       
 Engine Configuration: L4 Displacement: 2.2 /      Liters 134 /      Cubic Inches  
 Valves per Cylinder: 2 Rated HP 99 HP @ 4800 RPM (CNG); 104 HP @ 4400 RPM (GAS)  
 Engine: Front X Mid      Rear      Drive: FWD X RWD      4 WD-FT      4WD-PT       
 Exhaust ECS (e.g., MFI, EGR, TC, CAC): TWC / O2S / HO2S / SFI / TBI  
 (use abbreviations per SAE J1930 JUN93)

Engine Code (also list CA/49ST/ 50ST)	Vehicle Models	Trans. (M5, A4, etc.)	ETW or Test Wt.	DPA or RLHP	Ignition (ECM/PCM) Part No.	EGR System Part No.	Catalytic Converter Part No.
01 (50ST)	Chevrolet Cavalier	A3	3375	7.3	CNG: 52369387  GAS: NG9J0401 09377533 (PCM P/N)	N/A	25177767, 25178566

Date Issued:

Revisions: