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.)

Miles	Non-Methane Organic Gases	Carbon Monoxide	Nitrogen Oxides	Formaldehyde	Carbon Monoxide (20°F)
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.)

Miles	Non-Methane Organic Gases	Carbon Monoxide	Nitrogen Oxides	Formaldehyde	Carbon Monoxide (20°F)
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.).

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 29th day of March 1999.

R. B. Summerfield, Chief
Mobile Source Operations Division

E.O.# A-328-9

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: