

engine description (including displacement, number of cylinders, turbocharger (if used), and catalyst usage), engine code, and odometer reading.

(g) All pertinent instrument information including nozzle and fuel delivery system description. As an alternative, a reference to a vehicle test cell number may be used, with advance approval of the Administrator, provided test cell calibration records show the pertinent instrument information.

(h) Recorder charts: Identify zero, span, and enclosure gas sample traces.

(i) Enclosure barometric pressure and ambient temperature: a central laboratory barometer may be used, *provided* that individual test cell barometric pressures are shown to be within  $\pm 0.1$  percent of the barometric pressure at the central barometer location.

(j) Temperatures: Soak area; dispensed fuel, initial and final.

(k) Fuel dispensing rate(s).

(l) Dispensed fuel volume.

(m) For methanol-fueled vehicles:

(1) Volume of sample passed through the methanol sampling system and the volume of deionized water in each impinger.

(2) The methanol concentration in the reference sample and the peak area from the GC analysis of the reference sample.

(3) The peak area of the GC analyses of the test samples (methanol).

(n) All additional information necessary for the calculations specified in § 86.156-98.

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**§ 86.156-98 Calculations; refueling test.**

(a) The calculation of the net hydrocarbon mass change and methanol mass change (if applicable) in the enclosure is used to determine refueling mass emissions. The mass is calculated from initial and final hydrocarbon and methanol (if applicable) concentrations in ppm carbon, initial and final enclosure ambient temperatures, initial and final barometric pressures, and net enclosure volume using the equations of § 86.143-96. For vehicles with multiple tanks, the results for each tank shall be calculated and then summed to determine overall refueling emissions.

(b) The final results for comparison with the refueling control emission

standard shall be computed by dividing the total refueling mass emissions by the total gallons of fuel dispensed in the refueling test (see § 86.154-98(e)(7)(ii)).

(c) The results of all emission tests shall be rounded, in accordance with ASTM E 29-67 (reapproved 1980) (as referenced in § 86.094-28(a)(4)(i)(B)(2)(ii)) to the number of decimal places contained in the applicable emission standard expressed to one additional significant figure.

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**§ 86.157-98 Refueling test procedures for liquefied petroleum gas-fueled vehicles.**

(a) *Equipment.* (1) The sampling and analytical system shall meet the specifications in § 86.107-98(a) through (i).

(2) The refueling equipment nozzle specifications shall meet the requirements described in § 80.32.

(b) *General requirements.* (1) The refueling test procedure for light-duty liquefied petroleum gas-fueled vehicles and trucks starts with the preconditioning of the vehicle followed by a refueling emissions measurement. The test is conducted by following paragraphs (c) through (f) of this section in order.

(2) Ambient temperature levels encountered by the test vehicle throughout the test sequence shall not be less than 68 °F (20 °C) nor more than 86 °F (30 °C).

(3) The vehicle shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.

(c) *Vehicle preconditioning.* (1) The vehicle fuel tanks are to be filled with fuel that meets the specifications in § 86.113. Fuel tanks shall be filled to 10 percent of nominal fuel tank capacity, determined to the nearest one-tenth of a U.S. gallon (0.38 liter).

(2) The vehicle shall be parked (without starting the engine) within the temperature range specified in paragraph (a)(2) of this section for a minimum of one hour and a maximum of six hours.

(d) *Measurement procedure.* (1) The steps prior to the actual refueling event described in § 86.154-98(b) through (e)(5) shall be performed.