

methanol-fueled vehicles) retention check provides a check upon the calculated volume and also measures the leak rate. Prior to its introduction into service and at least monthly thereafter (the methanol check can be performed less frequently, provided it is performed at least twice annually) the enclosure leak rate shall be determined as follows:

\* \* \* \* \*

(5) Inject into the enclosure a known quantity of pure propane (4g is a convenient quantity) and a known quantity of pure methanol (4g is a convenient quantity) in gaseous form; i.e., at a temperature of at least 150–155 °F (65–68 °C). The propane and methanol may be measured by volume flow or by mass measurement. The method used to measure the propane

and methanol shall have an accuracy of ±0.5 percent of the measured value (less accurate methods may be used with the advanced approval of the Administrator). The methanol and propane tests do not need to be conducted simultaneously.

\* \* \* \* \*

(7) To verify the enclosure calibration, calculate the mass of propane and the mass of methanol using the measurements taken in steps (4) and (6) (see paragraph (d) of this section). This quantity must be within ±2 percent of that measured in step 5 above. (For 1991–1995 calendar years, the difference may exceed ±2 percent for methanol, provided it does not exceed ±8 percent for 1991 testing and ±6 percent for 1992–1995 testing.)

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(9) Calculate, using the equations in paragraph (d) of this section and the readings taken in step (8), the hydrocarbon and methanol mass. It may not differ by more than ±4 percent of the value in step (6). (For 1991–1995 calendar years, the difference may exceed ±4 percent for methanol, provided it does not exceed ±8 percent for 1991 testing and ±6 percent for 1992–1995 testing.)

(d) *Calculations.* (1) The calculation of net methanol and hydrocarbon mass change is used to determine enclosure background and leak rate. It is also used to check the enclosure volume measurements. The methanol mass change is calculated from the initial and final methanol samples, temperature and pressure according to the following equation:

$$M_{CH_3OH} = V_X \times \frac{T_{Ef}}{V_{Ef} \times T_{SHEDf}} (C_{MX1i} \times AV_{1f}) + (C_{MS2f} \times AV_{2f}) \\ - \frac{T_{Ei}}{V_{Ei} \times T_{SHEDi}} (C_{MS1i} \times AV_{1i}) + (C_{MS1i} \times AV_{2i})$$

Where:

- (i)  $M_{CH_3OH}$  = Methanol mass change, µg.
- (ii)  $V$  = Enclosure volume, ft<sup>3</sup>, as measured in paragraph (b)(1) of this section.
- (iii)  $T_E$  = Temperature of sample withdrawn, °R.
- (iv)  $T_{SHED}$  = Temperature of SHED, °R.

- (v)  $V_E$  = Volume of sample withdrawn, ft<sup>3</sup>.
- (vi)  $P_B$  = Barometric pressure at time of sampling, in. Hg.
- (vii)  $C_{MS}$  = GC concentration of test sample.
- (viii)  $AV$  = Volume of absorbing reagent in impinger (ml).

- (ix)  $i$  = Initial sample.
- (x)  $f$  = Final sample.
- (xi) 1 = First impinger.
- (xii) 2 = Second impinger.
- (2) \* \* \*
- (iii)  $C_{CH_3OH}$  = Methanol concentration as ppm carbon

$$= \frac{1.501 \times 10^{-3} \times T_E}{P_B \times V_E} [(C_{S1} \times AV_1) + (C_2 \times AV_2)]$$

\* \* \* \* \*

20. Section 86.117–96 of Subpart B is amended by revising paragraphs (c) heading and introductory text, (c)(1)(vii), (c)(1)(ix), (c)(1)(xii), (d)(1), and (d)(2)(iii) to read as follows:

**§ 86.117–96 Evaporative emission enclosure calibrations.**

\* \* \* \* \*

(c) *Hydrocarbon and methanol (organic) retention check and calibration.* The hydrocarbon and methanol (if the enclosure is used for methanol-fueled vehicles) retention check provides a check upon the calculated volume and also measures the leak rate. The enclosure leak rate shall be determined prior to its introduction into service, following any modifications or repairs to the enclosure that may affect the integrity of the

enclosure, and at least monthly thereafter. (The methanol check can be performed less frequently, provided it is performed at least twice annually.) If six consecutive monthly retention checks are successfully completed without corrective action, the enclosure leak rate may be determined quarterly thereafter as long as no corrective action is required.

(1) \* \* \*

(vii) Inject into the enclosure 2 to 6 grams of pure propane and 2 to 6 grams of pure methanol in gaseous form; i.e., at a temperature of at least 150 °F (65°C). The propane and methanol may be measured by volume flow or by mass measurement. The method used to measure the propane and methanol shall have an accuracy of ±0.2 percent of the measured value (less accurate methods may be used with the

advanced approval of the Administrator). The methanol and propane tests do not need to be conducted simultaneously.

\* \* \* \* \*

(ix) To verify the enclosure calibration, calculate the mass of propane and the mass of methanol using the measurements taken in paragraphs (c)(1)(vi) and (viii) of this section. See paragraph (d) of this section. This quantity must be within ±2 percent of that measured in paragraph (c)(1)(vii) of this section. (For 1991–1995 calendar years, the difference may exceed ±2 percent for methanol, provided it does not exceed ±6 percent.)

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(xii) At the completion of the 24-hour cycling period, analyze the enclosure atmosphere for hydrocarbon and