

$$M_{\text{HC}} = \left(\frac{kP_B V_n \times 10^{-4}}{T} \right) \times \left[\left(C_{\text{HC}_f} - rC_{\text{CH}_3\text{OH}_f} \right) - \left(C_{\text{HC}_i} - rC_{\text{CH}_3\text{OH}_i} \right) \right]$$

(e) *Calibration of equipment for point-source testing of running losses.* For the point-source method, the running loss fuel vapor sampling system shall be calibrated as a CVS system, as specified in § 86.119, with the additional specification that the vapor sampling system verification be conducted as follows:

(1) The following “gravimetric” technique can be used to verify that the vapor sampling system and analytical instruments can accurately measure a mass of gas that has been injected into the system. If the vapor sampling system will be used only in the testing of petroleum-fueled engines, the system verification may be performed using propane. If the vapor sampling system will be used with methanol-fueled vehicles as well as petroleum-fueled vehicles, the system verification performance check must include a methanol check in addition to the propane check. (Verification can also be accomplished by constant flow metering using critical flow orifice devices.)

(i) Obtain a small cylinder that has been charged with pure propane gas. Obtain another small cylinder that has been charged with pure methanol if the system will be used for methanol-fueled vehicle testing. Since this cylinder will be heated to 150–155 °F, care must be taken to ensure that the liquid volume of methanol placed in the cylinder does not exceed approximately one-half of the total volume of the cylinder.

(ii) Determine a reference cylinder weight to the nearest 0.01 grams.

(iii) Operate the vapor sampling system in the normal manner and release a known quantity of pure propane into the most frequently used fuel vapor collector during the sampling period (approximately 5 minutes).

(iv) Continue to operate the vapor sampling system in the normal manner and release a known quantity of pure methanol into the system during the sampling period (approximately 5 minutes).

(v) The calculations of § 86.144 are performed in the normal way, except in the case of propane. The density of propane (17.30 g/ft³/carbon atom (0.6109 kg/m³/carbon atom)) is used in place of the density of exhaust hydrocarbons. In the case of methanol, the density of 37.71 g/ft³ (1.332 kg/m³) is used.

(vi) The gravimetric mass is subtracted from the vapor sampling system measured mass and then divided by the gravimetric mass to determine the percent accuracy of the system.

(vii) The cause for any discrepancy greater than ±2 percent must be found and corrected.

(2) This procedure shall be conducted in the point-source running loss test environment with the collector installed in a vehicle in the normal test configuration. The fuel of the test vehicle shall either be diesel, or it shall be kept under 100 °F (38 °C). Two to six grams of pure propane and two to six grams of pure methanol shall be injected into the collector while the vehicle is operated over one Urban Dynamometer Driving Schedule (UDDS), as described in § 86.115 and appendix I of this part. The propane and methanol injections shall be conducted at the ambient temperature of 95±5 °F (35±3 °C).

[58 FR 16030, Mar. 24, 1993, as amended at 60 FR 34343, June 30, 1995; 60 FR 43890, Aug. 23, 1995; 70 FR 72927, Dec. 8, 2005; 73 FR 38293, July 3, 2008]

§ 86.118-00 Dynamometer calibrations.

(a) The dynamometer shall be calibrated at least once each month or performance verified at least once each week and then calibrated as required.

(b) For large single roll electric dynamometers or equivalent dynamometer configurations, the dynamometer adjustment settings for each vehicle’s emission test sequence shall be verified by comparing the force imposed during dynamometer operation with actual road load force.

[61 FR 54891, Oct. 22, 1996]