

"Calculation of Emissions and Fuel Economy When Using Alternative Fuels," EPA 460/3-83-009.)

Dehumidifying the dilution air before entering the CVS is allowed. Heating the dilution air is also allowed, provided:

(i) The air (or air plus exhaust gas) temperature does not exceed 250°F.

(ii) Calculation of the CVS flow rate necessary to prevent water condensation is based on the lowest temperature encountered in the CVS prior to sampling. (It is recommended that the CVS system be insulated when heated dilution air is used.)

(iii) The dilution ratio is sufficiently high to prevent condensation in bag samples as they cool to room temperature.

(5) Sample collection bags for dilution air and exhaust samples (hydrocarbons and carbon monoxide) shall be of sufficient size so as not to impede sample flow. A single dilution air sample, covering the total test period, may be collected for the determination of methanol and formaldehyde background (methanol-fueled motorcycles).

(6) The methanol sample collection system and the formaldehyde sample collection system shall each be of sufficient capacity so as to collect samples of adequate size for analysis without significant impact on the volume of dilute exhaust passing through the CVS. The systems shall also comply with the following requirements that apply to the design of the systems, not to individual tests:

(i) The methanol system shall be designed such that if a test motorcycle continuously emitted the maximum allowable level of methanol (based on all applicable standards) the measured concentration in the primary impinger would exceed either 25 mg/l or a concentration equal to 25 times the limit of detection for the GC analyzer.

(ii) The formaldehyde system shall be designed such that if a test motorcycle continuously emitted formaldehyde at a rate equal to twenty percent of the maximum allowable level of THCE (i.e., 1.0 g/km for a 5.0 g/km standard), or the maximum formaldehyde level allowed by a specific formaldehyde standard, whichever is less, the concentration of formaldehyde in the DNPH solution of the primary impinger, or solution resulting from the extraction of the DNPH cartridge, shall exceed either 2.5 mg/l or a concentration equal to 25 times the limit of detection for the HPLC analyzer.

(iii) The methanol and formaldehyde systems shall be designed such that the primary impinger collects at least 90 percent of the analyte in the samples.

The remaining analyte shall be collected by the secondary impinger. This requirement does not apply to dilution air samples, since they do not require secondary impingers, or to samples in which the concentrations approach the limit of detection.

(d) *Component description, CFV-EFC-CSV.* The CVS sample system is identical to the system described in paragraph (c) of this section, plus includes a means of electronically measuring the CVS flow rate, and electronic mass flow controllers for the methanol and formaldehyde sample lines, and separate flow meters to totalize sample flow volumes (optional). The EFC sample system shall conform to all of the requirements listed in paragraph (c) of this section, except that the methanol and formaldehyde samples may both be drawn from a single static probe. It also must comply with the following additional requirements:

(1) The ratio of the CVS flow rate to the sample flow rate shall not deviate from the ratio at the start of the test by more than  $\pm 5$  percent. (The volumetric sample flow rate shall be varied inversely with the square root of the bulk stream temperature.)

(2) Flow totalizers for methanol and/or formaldehyde samples shall have an accuracy of  $\pm 2$  percent. Total sample volumes may be obtained from the flow controllers, with the advance approval of the administrator, provided that the controllers can be shown to have an accuracy of  $\pm 2$  percent.

35. Section 86.513-94 of Subpart F is amended by revising paragraphs (c)(1) and (c)(2), and adding paragraph (c)(3) to read as follows:

**§ 86.513-94 Fuel and engine lubricant specifications.**

\* \* \* \* \*

(c) \* \* \* (1) mixtures of petroleum and methanol fuels used for exhaust and evaporative emission testing and service accumulation for flexible fuel motorcycles shall consist of the petroleum fuel listed in paragraph (a) of this section and the methanol fuel listed in paragraph (b), and shall be within the range of fuel mixtures for which the vehicle was designed, as reported in accordance with § 86.90-21. The Administrator may use any fuel or fuel mixture within this range for testing.

(2) The fuel mixtures used by the manufacturers shall be sufficient to demonstrate compliance over the full design range, and shall include:

(i) For emission testing,

(A) The petroleum fuel specified in paragraph (a) or (b),

(B) A methanol fuel representative of the methanol fuel expected to be found in use, as specified in paragraph (b),

(ii) For service accumulation, an alternating combination of the fuels specified in paragraphs (a) and (b) will be used to demonstrate the durability of the emission control systems based on good engineering judgement. The combination shall be selected such that the cumulative volumes of both the methanol fuel and the petroleum fuel used shall be at least twenty-five percent of the total fuel volume. The fuels shall be alternated at mileage intervals not to exceed 1,000 kilometers.

(3) The specification range of the fuels to be used under paragraph (c) of this section shall be reported in accordance with § 86.094-21.

\* \* \* \* \*

36. Section 86.514-78 of Subpart F is amended by revising paragraphs (a)(2) and (b), and adding paragraph (c) to read as follows:

**§ 86.514-78 Analytical gases.**

(a) \* \* \*

(2) Gases for the THC analyzer shall be:

(i) Single blends of propane using air as the diluent; and

(ii) Optionally, for response factor determination, single blends of methanol using air as the diluent.

\* \* \* \* \*

(b) Calibration gases (not including methanol) shall be known to within 2 percent of true values.

(c) Methanol in air gases used for response factor determination shall:

(1) Be traceable to within  $\pm 2$  percent of NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator; and

(2) Remain within  $\pm 2$  percent of the labeled concentration. Demonstration of stability shall be based on a quarterly measurement procedure with a precision of  $\pm 2$  percent (two standard deviations), or other method approved by the Administrator. The measurement procedure may incorporate multiple measurements. If the true concentration of the gas changes by more than two percent, but less than ten percent, the gas may be relabeled with the new concentration.

37. Section 86.516-90 of Subpart F is amended by revising paragraph (c)(1) to read as follows:

**§ 86.516-90 Calibrations, frequency and overview.**

\* \* \* \* \*

(c) \* \* \*

(1) Calibrate the hydrocarbon analyzer, methane analyzer, carbon dioxide analyzer, carbon monoxide