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(3) * * *

(iii) SAMppm=methanol concentration in the sample bag, or gas bottle, in ppmC. SAMppm for sample bags:

$$= \frac{0.02406 \times \text{Fuel injected} \times \text{Fuel density}}{\text{Air volume} \times \text{Mol. Wt. CH}_3\text{OH}}$$

Where:

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66. Section 86.1323-84 of Subpart N is amended by adding paragraph (d) to read as follows:

§ 86.1323-84 Oxides of nitrogen analyzer calibration.

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(d) When testing methanol-fueled engines it may be necessary to clean the analyzer frequently to prevent interference with NO_x measurements (see EPA/60/S3-88/040).

67. Section 86.1327-90 of Subpart N is amended by revising paragraph (a) to read as follows:

§ 86.1327-90 Engine dynamometer test procedures; overview.

(a) The engine dynamometer test procedure is designed to determine the brake specific emissions of hydrocarbons, nonmethane hydrocarbons carbon monoxide, oxides of nitrogen, particulate, methanol and formaldehyde, as applicable. The test procedure consists of a "cold" start test following either natural or forced cool-down periods described in §§ 86.1334 and 86.1335, respectively. A "hot" start test follows the "cold" start test after a hot soak of 20 minutes. The idle test of subpart P of this part may be run after the "hot" start test. The exhaust emissions are diluted with ambient air and a continuous proportional sample is collected for analysis during both the cold- and hot-start tests. The composite samples collected are analyzed either in bags or continuously for hydrocarbons (HC), methane (CH₄—as applicable), carbon monoxide (CO), carbon dioxide (CO₂), and oxides of nitrogen (NO_x), or in sample collection impingers for methanol (CH₃OH) and sample collection impingers (or cartridges) for formaldehyde (HCHO). Measurement of CH₃OH and HCHO may be omitted for 1990 through 1994 model year methanol-fueled engines when a FID calibrated on methanol is used. A bag or continuous sample of the dilution air is similarly analyzed for background levels of hydrocarbon, carbon monoxide, carbon dioxide, and oxides of nitrogen and, if appropriate, methane and/or methanol and/or formaldehyde. In addition, for diesel-cycle engines,

particulates are collected on fluorocarbon-coated glass fiber filters or fluorocarbon-based (membrane) filters, and the dilution air may be prefiltered.

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69. Section 86.1327-96 of Subpart N is amended by revising paragraph (a) to read as follows:

§ 86.1327-96 Engine dynamometer test procedures; overview.

(a) The engine dynamometer test procedure is designed to determine the brake specific emissions of hydrocarbons, nonmethane hydrocarbons, carbon monoxide, oxides of nitrogen, particulate, methanol and formaldehyde, as applicable. The test procedure consists of a "cold" start test following either natural or forced cool-down periods described in §§ 86.1334 and 86.1335, respectively. A "hot" start test follows the "cold" start test after a hot soak of 20 minutes. The idle test of subpart P of this part may be run after the "hot" start test. The exhaust emissions are diluted with ambient air and a continuous proportional sample is collected for analysis during both the cold- and hot-start tests. The composite samples collected are analyzed either in bags or continuously for hydrocarbons (HC), methane (CH₄), carbon monoxide (CO), carbon dioxide (CO₂), and oxides of nitrogen (NO_x), or in sample collection impingers for methanol (CH₃OH) and sample collection impingers (or cartridges) for formaldehyde (HCHO), as applicable. Measurement of CH₃OH and HCHO may be omitted for 1990 through 1994 model year methanol-fueled engines when a FID calibrated on methanol is used. A bag or continuous sample of the dilution air is similarly analyzed for background levels of hydrocarbon, carbon monoxide, carbon dioxide, and oxides of nitrogen and, if appropriate, methane and/or methanol and/or formaldehyde. In addition, for diesel-cycle engines, particulates are collected on fluorocarbon-coated glass fiber filters or fluorocarbon-based (membrane) filters, and the dilution air may be prefiltered.

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69. Section 86.1330-90 of Subpart N is amended by revising paragraphs (b)(1) and (c) to read as follows:

§ 86.1330-90 Test sequence; general requirements.

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(b) * * * (1) The temperature of the CVS dilution air shall be maintained at greater than 68°F (20°C) throughout the test sequence, except as permitted by § 86.1335-90. Heating of the dilution air above 86°F is allowed provided:

(i) The air (or air plus exhaust gas) temperature does not exceed 250°F, or 125°F if particulate emissions are measured.

(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 insulation 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.

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(c) No control of ambient air, engine intake or CVS dilution air humidity is required (dehumidification of the dilution air prior to entering the CVS is allowed).

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70. Section 86.1337-90 of Subpart N is amended by revising paragraphs (a)(3), (a)(13) and (a)(26) to read as follows:

§ 86.1337-90 Engine dynamometer test run.

(a) * * *

(3) For methanol-fueled vehicles, install fresh methanol and formaldehyde impingers (or cartridges) in the exhaust and dilution air sample systems for methanol and formaldehyde. A single dilution air sample covering the total test period may be utilized for methanol and formaldehyde background. (Background measurements of methanol and formaldehyde may be omitted and concentrations assumed to be zero for calculations in § 86.1344.)

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(13) Immediately after the engine is turned off, turn off the engine cooling fan(s) if used, and the CVS blower (or disconnect the exhaust system from the CVS). As soon as possible, transfer the "cold start cycle" exhaust and dilution air bag samples to the analytical system and process the samples according to § 86.1340. A stabilized reading of the exhaust sample on all analyzers shall be obtained within 20 minutes of the end of the sample collection phase of the test. Analysis of the methanol and formaldehyde samples shall be obtained within 24 hours of the end of the sample collection period. (If it is not possible to perform the analysis within 24 hours, the samples should be stored in a cold (4-10 °C) dark environment until analysis can be performed. The samples should be analyzed within fourteen days.) For diesel engines tested for particulate, carefully remove the filter holder from the sample flow apparatus,