

for gaseous emissions using the Constant Volume Sampler (CVS) concept (§ 86.209). Equipment necessary and specifications appear in §§ 86.208 through 86.214.

(b) *Fuel, analytical gas, and driving schedule specifications.* Fuel specifications for exhaust emission testing for gasoline-fueled vehicles are specified in § 86.213. Analytical gases are specified in § 86.214. The EPA Urban Dynamometer Driving Schedule (UDDS) for use in gasoline-fueled emission tests is specified in § 86.215 and appendix I to this part.

§ 86.207-94 [Reserved]

§ 86.208-94 Dynamometer.

(a) For testing that is conducted by the Administrator, the dynamometer shall have a single roll with a nominal diameter of 48 inches (1.22 meters), an electrical power absorption unit for simulation of road load power, flywheels or other means for simulating the inertia weight as specified in § 86.229, and a roll or shaft revolution counter or other means for determining distance driven.

(b) For certification testing that is conducted by the manufacturer, a dynamometer with different characteristics may be used provided cold CO emissions are not decreased.

§ 86.209-94 Exhaust gas sampling system; gasoline-fueled vehicles.

The provisions of § 86.109-90 apply to this subpart.

§ 86.210-08 Exhaust gas sampling system; Diesel-cycle vehicles not requiring particulate emissions measurements.

(a) *General applicability.* The exhaust gas sampling system requirements of § 86.109-94 (which apply to Otto-cycle vehicles), also apply to diesel vehicles that are not required to undergo particulate measurement as allowed under § 600.111-08(e) of this chapter, except that heated flame ionization detector (HFID), probe, sample lines and filters are required as described as follows:

(1) Petroleum-fueled diesel-cycle vehicles require a heated flame ionization detector (HFID) (375 ± 20 °F (191 ± 11 °C)) sample for total hydrocarbon (THC) analysis. The HFID sample must

be taken directly from the diluted exhaust stream through a heated probe and continuously integrated measurement of diluted THC is required. Unless compensation for varying mass flow is made, a constant mass flow system must be used to ensure a proportional THC measurement.

(2) For natural gas-fueled and liquefied petroleum gas-fueled diesel vehicles either a heated flame ionization detector (HFID) [375 ± 20 °F (191 ± 11 °C)] or a non-heated flame ionization detector may be used for hydrocarbon analysis.

(3) Other sampling systems may be used if shown to yield equivalent or superior results and if approved in advance by the Administrator.

(b) *Component description.* The components necessary for petroleum-fueled diesel vehicle exhaust sampling shall meet the following requirements:

(1) The PDP system shall conform to all of the requirements listed for the exhaust gas PDP-CVS (§ 86.109-94(a)(3)).

(2) The CFV-CVS sample system shall conform to all of the requirements listed for the exhaust gas EFC sample system (§ 86.109-94(a)(5)).

(3) The THC probe (when the THC probe is required) shall be:

(i) Installed at a point where the dilution air and exhaust are well mixed.

(ii) Heated and insulated over the entire length to maintain a 375 ± 20 °F (191 ± 11 °C) wall temperature.

(iii) 0.19 in. (0.48 cm) minimum inside diameter.

(4) It is intended that the THC probe be free from cold spots (i.e., free from spots where the probe wall temperature is less than 355 °F). This will be determined by a temperature sensor located on a section of the probe wall outside of the walls of the sampling system. The temperature sensor shall be insulated from any heating elements on the probe. The sensor shall have an accuracy and precision of ± 2 °F (1.1 °C).

(5) The dilute exhaust gas flowing in the THC sample system shall be:

(i) At 375 ± 10 °F (191 ± 6 °C) immediately before the heated filter. This will be determined by a temperature sensor located immediately upstream of the filter. The sensor shall have an accuracy and precision of ± 2 °F (1.1 °C).

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(ii) At 375 °F±10 °F (191 °C ±6 °C) immediately before the HFID. This will be determined by a temperature sensor located at the exit of the heated sample line. The sensor shall have an accuracy and precision of ±2 °F (1.1 °C).

(6) It is intended that the dilute exhaust gas flowing in the THC sample system be between 365 °F and 385 °F (185 °C and 197 °C).

(7) The requirements for the continuous HC measurement system are as follows:

(i) The system must use an “overflow” zero and span system. In this type of system, excess zero or span gas spills out of the probe when zero and span checks of the analyzer are made. The “overflow” system may also be used to calibrate the HC analyzer per §86.1321(b), although this is not required.

(ii) No other analyzers may draw a sample from the continuous HC sample probe, line or system, unless a common sample pump is used for all analyzers and the sample line system design reflects good engineering practice.

(iii) The overflow gas flow rates into the sample line shall be at least 105% of the sample system flow rate.

(iv) The overflow gases shall enter the heated sample line as close as practicable to the outside surface of the CVS duct or dilution tunnel.

[71 FR 77922, Dec. 27, 2006, as amended at 74 FR 61548, Nov. 25, 2009]

§ 86.210-94 [Reserved]

§ 86.211-94 Exhaust gas analytical system.

The provisions of §86.111-94 apply to this subpart, except that the NO_x ana-

lyzer is optional. The exhaust gas analytical system must contain components necessary to determine hydrocarbons, carbon monoxide, carbon dioxide, methane, and formaldehyde. The exhaust gas analytical system is not required to contain components necessary for determining oxides of nitrogen.

[71 FR 77923, Dec. 27, 2006]

§ 86.212-94 [Reserved]

§ 86.213-04 Fuel specifications.

Gasoline having the following specifications will be used by the Administrator except that the Administrator will not use gasoline having a sulfur specification higher than 0.0045 weight percent. Gasoline having the specifications set forth in the table in this section, or substantially equivalent specifications approved by the Administrator, may be used by the manufacturer except that the octane specification does not apply. In lieu of using gasoline having these specifications, the manufacturer may, for certification testing, use gasoline having the specifications specified in §86.113-04 provided the cold CO emissions are not decreased. Documentation showing that cold CO emissions are not decreased must be maintained by the manufacturer and must be made available to the Administrator upon request. The table listing the cold CO fuel specifications described in the text in this section follows:

TABLE—COLD CO FUEL SPECIFICATIONS

Item	ASTM test	Cold CO low octane value or range	Cold CO high octane ¹ value or range
(RON+MON)/2, min	D 2699	87.8±.3	92.3±0.5
Sensitivity, min	D 2699	7.5	7.5
Distillation range:			
IBP, deg.F	D 86	76–96	76–96
10% point, deg.F.	D 86	98–118	105–125
50% point, deg.F.	D 86	179–214	195–225
90% point, deg.F.	D 86	316–346	316–346
EP, max, deg.F	D 86	413	413
Sulfur, wt. %	D 3120	0.0015–0.008	0.0015–0.008
Phosphorous, g/U.S gal, max	D 3231	0.005	0.005
Lead, g/gal, max		0.01	0.01
RVP, psi	D 4953	11.5±.3	11.5±.3
Hydrocarbon composition	D 1319		
Olefins, vol. pct		12.5±5.0	10.0±5.0