measured and a continuously proportioned sample of volume shall be collected for analysis. Mass emissions shall be determined from the sample concentration and total flow over the test period.

(ii) The PDP–CVS shall consist of a dilution air filter and mixing assembly, heat exchanger, positive-displacement pump, sampling system, and associated valves, pressure and temperature sensors. The PDP–CVS shall conform to the following requirements:

(A) The gas mixture temperature, measured at a point immediately ahead of the positive-displacement pump, shall be within ±10 °F of the designed operating temperature at the start of the test. The gas mixture temperature variation from its value at the start of the test shall be limited to ±10 °F during the entire test. The temperature measuring system shall have an accuracy and precision of ±2 °F.

(B) The pressure gauges shall have an accuracy and precision of ±1.6 inches of water (±0.4 kPa).

(C) The flow capacity of the CVS shall not exceed 350 cfm.

(D) Sample collection bags for dilution air and running loss fuel vapor samples shall be sufficient size so as not to impede sample flow.

(iii) The CFV sample system shall consist of a dilution air filter and mixing assembly, a sampling venturi, a critical flow venturi, a sampling system and assorted valves, and pressure and temperature sensors. The CFV sample system shall conform to the following requirements:

(A) The temperature measuring system shall have an accuracy and precision of ±2 °F and a response time of 0.100 seconds of 62.5 percent of a temperature change (as measured in hot silicone oil).

(B) The pressure measuring system shall have an accuracy and precision of ±1.6 inches of water (0.4 kPa).

(C) The flow capacity of the CVS shall not exceed 350 cfm.

(D) Sample collection bags for dilution air and running loss fuel vapor samples shall be of sufficient size so as not to impede sample flow.

(3) An on-line computer system or strip-chart recorder shall be used to record the following additional parameters during the running loss test sequence:

(i) CFV (if used) inlet temperature and pressure.

(ii) PDP (if used) inlet temperature, pressure, and differential pressure.

[58 FR 16047, Mar. 24, 1993, as amended at 59 FR 48521, Sept. 21, 1994; 60 FR 34358, June 30, 1995; 60 FR 43898, Aug. 23, 1995]

§ 86.1213–04 Fuel specifications.

The test fuels listed in § 86.1313–04 shall be used for evaporative emission testing.

[66 FR 5168, Jan. 18, 2001]

§ 86.1213–90 Fuel specifications.

(a) Gasoline having the following specifications will be used in emissions testing for gasoline-fueled vehicles.

Item	ASTM	Value
Octane, research, min	D2699	93
Sensitivity, min	.....	7.5
Lead (organic), g/U.S. gal	D3237	0.050[1]
(g/liter)	.....	(0.013)[1]
Distillation range:		
IBP, °F	D86	75–95
(°C)	.....	(23.9–35)
10 pct. point, °F	D86	120–135
(°C)	.....	(48.9–57.2)
50 pct. point, °F	D86	200–230
(°C)	.....	(93.3–110)
90 pct. point, °F	D86	300–325
(°C)	.....	(148.9–162.8)
EP, max. °F	D86	415
(°C)	.....	(212.8)
Sulphur, max. wt. pct	D1266	0.10
Phosphorous, max. g/U.S. gal	D3231	0.005
(g/liter)	.....	(0.0013)
RVP, psi	D323	8.7–9.2
(kPa)	.....	(60.0–63.4)
Hydrocarbon composition:		
Olefins, max. pct	D1319	10
Aromatics, max. pct	D1319	35
Saturates	D1319	[2]

[1] Maximum.
[2] Remainder.

(b)(1) Unleaded gasoline representative of commercial gasoline which will be generally available through retail outlets shall be used in service accumulation.

(2) The octane rating of the gasoline used shall be no higher than 1.0 Research octane number above the minimum recommended by the manufacturer and have a minimum sensitivity of 7.5 octane numbers, where sensitivity is defined as the Research octane number minus the Motor octane number.

(3) The Reid Vapor Pressure of the gasoline used shall be characteristic of the motor fuel used during the season in which the service accumulation takes place.

(c) Methanol fuel used in evaporative emission testing and in service accumulation of methanol-fueled vehicles shall be representative of commercially available methanol fuel and shall consist of at least 50 percent methanol (CH_3OH) by volume.

(1) Manufacturers shall recommend the methanol fuel to be used for testing and service accumulation in accordance with paragraph (c) of this section.

(2) The Administrator shall determine the methanol fuel to be used for testing and service accumulation.

(d) Other methanol fuels may be used for testing and service accumulation provided:

(1) They are commercially available, and

(2) Information, acceptable to the Administrator, is provided to show that only the designated fuel would be used in customer service, and

(3) Use of a fuel listed under paragraph (c)(2) of this section would have a detrimental effect on emissions or durability, and

(4) Written approval from the Administrator of the fuel specifications must be provided prior to the start of testing.

(e) The specification range of the fuels to be used under paragraphs (b), (c), and (d) of this section shall be reported in accordance with § 86.090–21(b)(3).

(f) *Mixtures of petroleum and methanol fuels for flexible fuel vehicles.* (1) Mixtures of petroleum and methanol fuels used for exhaust and evaporative emission testing and service accumulation for flexible fuel vehicles shall be within the range of fuel mixtures for which the vehicle was designed.

(2) Manufacturer testing and service accumulation may be performed using only those mixtures (mixtures may be different for exhaust testing, evaporative testing, and service accumulation) expected to result in the highest emissions, provided:

(i) The fuels which constitute the mixture will be used in customer service, and

(ii) Information, acceptable to the Administrator, is provided by the manufacturer to show that the designated fuel mixtures would result in the highest emissions, and

(iii) Written approval from the Administrator of the fuel specifications must be provided prior to the start of testing.

(3) The specification range of the fuels to be used under paragraph (f)(2) of this section shall be reported in accordance with § 86.090–21(b)(3).

[53 FR 476, Jan. 7, 1988, as amended at 54 FR 14563, Apr. 11, 1989]

§ 86.1213–94 Fuel specifications.

(a) *Gasoline fuel.* (1) Gasoline having the following specifications will be used in emissions testing for gasoline-fueled vehicles.

Item	ASTM	Value
Octane, research, min.	D2699	93
Sensitivity, min.	.....	7.5
Lead (organic) g/U.S. gal	D3237	[1] 0.050
(g/liter)	.....	[1] (0.013)
Distillation range:		
IBP °F	D86	75–95
(°C)	.....	(23.9–35)
10 pct. point °F	D86	120–135
(°C)	.....	(48.9–57.2)
50 pct. point °F	D86	200–230
(°C)	.....	(93.3–110)
90 pct. point °F	D86	300–325
(°C)	.....	(148.9–162.8)
EP, max. °F	D86	415
(°C)	.....	(212.8)
Sulphur, max. wt. pct.	D1266	0.10
Phosphorous, max. g/U.S. gal.	D3231	0.005
(g/liter)	.....	(0.0013)
RVP, psi.	D323	8.7–9.2
(kPa)	.....	(60.0–63.4)
Hydrocarbon composition:		
Olefins, max. pct.	D1319	10
Aromatics, max. pct.	D1319	35
Saturates	D1319	([2])

[1] Maximum.
[2] Remainder.

(2)(i) Unleaded gasoline representative of commercial gasoline which will be generally available through retail outlets shall be used in service accumulation.

(ii) The octane rating of the gasoline used shall be no higher than 1.0 Research octane number above the minimum recommended by the manufacturer and have a minimum sensitivity of 7.5 octane numbers, where sensitivity is defined as the Research octane number minus the Motor octane number.