(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.

(iii) 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.

(3) The specification range of the gasoline to be used under paragraphs (a)(1) and (a)(2) of this section shall be reported in accordance with § 86.094–21(b)(3).

(b) *Methanol fuel.* (1) 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.

(i) Manufacturers shall recommend the methanol fuel to be used for testing and service accumulation.

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

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

(i) They are commercially available;

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

(iii) Use of a fuel listed under paragraph (b)(1) of this section would have a detrimental effect on emissions or durability; and

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

(3) The specification range of the methanol fuels to be used under paragraphs (b)(1) and (b)(2) of this section shall be reported in accordance with § 86.094–21(b)(3).

(c) *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 consist of the gasoline listed in paragraph (a) of this section and the methanol fuel listed in paragraph (b) of this section, and shall be within the range fuel mixtures for which the vehicle was designed as reported in accordance with § 86.94–21. The Administrator may use any fuel 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) of this section;

(B) A methanol fuel representative of the methanol fuel expected to be found in use, as specified in paragraph (d) of this section; and

(C) A combination of the fuels specified in paragraphs (c)(2)(i)(A) and (B) of this section that represents the composition which results in the highest Reid Vapor Pressure for the mixture. The mixture shall contain between nine and thirteen percent methanol.

(ii) For service accumulation, an alternating combination of the fuels specified in paragraphs (a) and (b) of this section that, based on good engineering judgement, demonstrates the durability of the emission control system. The fuels may be used as a single mixture or alternated.

(iii) Or, other combinations for testing or service accumulation which demonstrate compliance with the standards over the entire design range of the vehicle, provided that written approval is obtained from the Administrator prior to the start of testing.

(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.

(d) *Natural gas fuel.* (1) Natural gas fuel having the following specifications will be used in evaporative emission testing and in service accumulation of natural gas-fueled vehicles shall be commercially available natural gas fuel.

NATURAL GAS CERTIFICATION FUEL SPECIFICATIONS

Item		ASTM	Value
Methane	min. mole pct	D1945	89.0
Ethane	max. mole pct	D1945	4.5
C_3 and higher	max. mole pct	D1945	2.3
C_6 and higher	max. mole pct	D1945	0.2
Oxygen	max. mole pct	D1945	0.6
Inert gases:			
Sum of CO_2 and N_2	max. mole pct	D1945	4.0
Odorant [1]			

[1] The natural gas at ambient conditions must have a distinctive odor potent enough for its presence to be detected down to a concentration in air of not over 1/5 (one-fifth) of the lower limit of flammability.

(2) Natural gas fuel representative of commercial natural gas which will be generally available through retail outlets shall be used in service accumulation.

(3) Other natural gas fuels may be used for emission testing and service accumulation provided:

(i) They are commercially available;

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

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

(4) The specification range of the fuels to be used under paragraphs (d)(1), (d)(2) and (d)(3) of this section shall be reported in accordance with § 86.094–21(b)(3).

(e) *Liquefied petroleum gas-fuel.* (1) Liquefied petroleum gas-fuel used in evaporative emission testing and in service accumulation of liquefied petroleum gas-fueled vehicles shall be commercially available liquefied petroleum gas-fuel.

(i) Manufacturers shall recommend the liquefied petroleum gas-fuel to be used for testing and service accumulation.

(ii) The Administrator shall determine the liquefied petroleum gas-fuel to be used for testing and service accumulation.

(2) Other liquefied petroleum gas fuels may be used for testing and service accumulation provided:

(i) They are commercially available;

(ii) Information, acceptable to the Administrator, is provided to show that only the designated fuel would be used in customer service; 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 paragraphs (e)(1) and (e)(2) of this section shall be measured in accordance with ASTM D2163–91 and reported in accordance with § 86.094–21(b)(3).

[59 FR 48521, Sept. 21, 1994, as amended at 34359, June 30, 1995]

§ 86.1214–85 Analytical gases.

(a) *Analyzer gases.* (1) Gases for the hydrocarbon 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.

(2) Fuel for the evaporative emission enclosure FID (or HFID for methanol-fueled vehicles) shall be a blend of 40 ±2 percent hydrogen with the balance being helium. The mixture shall contain less than 1 ppm equivalent carbon response. 98 to 100 percent hydrogen fuel may be used with advance approval by the Administrator.

(3) The allowable zero air impurity concentration shall not exceed 1 ppm equivalent carbon response.

(4) "Zero grade air" includes artificial "air" consisting of a blend of nitrogen and oxygen with oxygen concentrations between 18 and 21 mole percent.

(5) The use of proportioning and precision blending devices to obtain the required analyzer gas concentrations is allowable provided their use has been approved in advance by the Administrator.

(b) Calibration gases (not including methanol) shall be traceable to within one percent of NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator.

(c) Span gases (not including methanol) shall be accurate to within two percent of true concentration, where true concentration refers to NIST (formerly NBS) gas standards, or other gas standards which have been approved by the Administrator.

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

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

(2) Remain within ±2 percent of the labeled concentration. Demonstration of stability shall be based on a quarterly measurement procedure with a precision of ±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