

**Environmental Protection Agency**

**§ 86.1773-99**

Fuel property	Limit
90 pct. point, .....	290-300.
EP, maximum .....	390.
Residue, vol % (max) .....	2.0.
Sulfur, ppm by wt. ....	30-40.
Phosphorous, g/gal (max) .....	0.005.
RVP, psi .....	6.7-7.0.
Olefins, vol % .....	4.0-6.0.
Total Aromatic Hydrocarbons (vol %).	22-25.
Benzene, vol % .....	0.8-1.0.
Multi-Substituted Alkyl Aromatic Hydrocarbons, vol %.	12-14.
MTBE, vol % .....	10.8-11.2.
Additives .....	See Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These procedures are incorporated by reference (see § 86.1).
Copper Corrosion .....	No. 1.
Gum, Washed, mg/100 ml (max).	3.0.
Oxidation Stability, minutes (min).	1,000.
Specific Gravity .....	No limit; report to purchaser required.
Heat of Combustion .....	No limit; report to purchaser required.
Carbon, wt % .....	No limit; report to purchaser required.
Hydrogen, wt % .....	No limit; report to purchaser required.

- (2) [Reserved]
- (b) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998]

**§ 86.1772-99 Road load power, test weight, and inertia weight class determination.**

- (a) The provisions of § 86.129 apply to this subpart.
- (b) The following requirements shall also apply to this subpart:
  - (1) For electric and hybrid electric vehicle lines where it is expected that more than 33 percent of a vehicle line will be equipped with air conditioning, per § 86.096-24(g)(2) or § 86.1832-01(a) as applicable, that derives power from the battery pack, the road load shall be increased by the incremental horsepower required to operate the air conditioning unit. The incremental increase shall be determined by recording the difference in energy required for a hybrid electric vehicle under all-electric power to complete the running loss test fuel tank temperature profile test sequence without air conditioning and the same vehicle tested over the running loss test fuel tank temperature

profile test sequence with the air conditioning set to the "NORMAL" air conditioning mode and adjusted to the minimum discharge air temperature and high fan speed over the time period needed to perform the test sequence, and converting this value into units of horsepower. Vehicles equipped with automatic temperature controlled air conditioning systems shall be operated in "AUTOMATIC" temperature and fan modes with the system set at 72 deg. F. The running loss test fuel tank temperature profile test sequence is found in § 86.129(d).

- (2) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998, as amended at 64 FR 23924, May 4, 1999]

**§ 86.1773-99 Test sequence; general requirements.**

- (a) The provisions of § 86.130 apply to this subpart.
- (b) The following additional requirements shall also apply to this subpart:
  - (1) For purposes of determining conformity with 50 °F test requirements, the procedures set forth in paragraph (c) of this section shall apply. For all hybrid electric vehicles and all 1995 and subsequent model-year vehicles certifying to running loss and useful life evaporative emission standards, the test sequence specified in subpart B of this part shall apply.

- (2) [Reserved]

(c)(1) Following a 12 to 36 hour cold soak at a nominal temperature of 50 °F, emissions of CO and NO<sub>x</sub> measured on the Federal Test Procedure (subpart B of this part), conducted at a nominal test temperature of 50 °F, shall not exceed the standards for vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68 to 86 °F. For all TLEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all LEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all ULEVs, emissions of NMOG and formaldehyde at 50 °F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. Emissions

of NMOG shall be multiplied by a reactivity adjustment factor, if any, prior to comparing with the 50,000 certification standard multiplied by the specified factor. The test vehicles shall not be subject to a diurnal heat build prior to the cold start exhaust test or evaporative emission testing.

(i) For the 50 °F emission test, the nominal preconditioning, soak, and test temperatures shall be maintained within 3 °F of the nominal temperature on an average basis and within 5 °F of the nominal temperature on a continuous basis. The temperature shall be sampled at least once every 15 seconds during the preconditioning and test periods and at least once each 5 minutes during the soak period. A continuous strip chart recording of the temperature with these minimum time resolutions is an acceptable alternative to employing a data acquisition system.

(ii) The test site temperature shall be measured at the inlet of the vehicle cooling fan used for testing.

(iii) The test vehicle may be fueled before the preconditioning procedure in a fueling area maintained within a temperature range of 68 to 86 °F. The preconditioning shall be conducted at a nominal temperature of 50 °F. The requirement to saturate the evaporative control canister(s) shall not apply.

(iv) If a soak area remote from the test site is used, the vehicle may pass through an area maintained within a temperature range of 68 to 86 °F during a time interval not to exceed 10 minutes. In such cases, the vehicle shall be restabilized to 50 °F by soaking the vehicle in the nominal 50 °F test area for six times as long as the exposure time to the higher temperature area, prior to starting the emission test.

(v) The vehicle shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.

(2) Manufacturers shall demonstrate compliance with this requirement each year by testing at least three LDV or LDT emission data and/or engineering development vehicles (with at least 4000 miles) which are representative of the array of technologies available in that model year. Only TLEVs, LEVs, and ULEVs are to be considered for testing at 50 °F. It is not necessary to

apply deterioration factors (DFs) to the 50 °F test results to comply with this requirement. Testing at 50 °F shall not be required for fuel-flexible and dual-fuel vehicles when operating on gasoline. Natural gas, hybrid electric and diesel-fueled vehicles shall also be exempt from 50 °F testing.

(3) The following schedule outlines the parameters to be considered for vehicle selection:

(i) Fuel control system (e.g., multiport fuel injection, throttle body electronic fuel injection, sequential multiport electronic fuel injection, etc.);

(ii) Catalyst system (e.g., electrically heated catalyst, close-coupled catalyst, underfloor catalyst, etc.);

(iii) Control system type (e.g., mass-air flow, speed density, etc.);

(iv) Vehicle category (e.g., TLEV, LEV, ULEV);

(v) Fuel type (e.g., gasoline, methanol, etc.).

(4) The same engine family shall not be selected in the succeeding two years unless the manufacturer produces fewer than three engine families. If the manufacturer produces more than three TLEV, LEV, or ULEV engine families per model year, the Administrator may request 50 °F testing of specific engine families. If the manufacturer provides a list of the TLEV, LEV, and ULEV engine families that it will certify for a model year and provides a description of the technologies used on each engine family (including the vehicle selection parameters information in paragraphs (c)(3) (i) through (v) of this section), the Administrator shall select the engine families subject to 50 °F testing within a 30 day period after receiving such a list and description. The Administrator may revise the engine families selected after the 30 day period if the information provided by the manufacturer does not accurately reflect the engine families actually certified by the manufacturer.

(5) For the purposes of this section, the Administrator will accept vehicles selected and tested in accordance with the 50 °F testing procedures specified by the California Air Resources Board.

(d) A manufacturer has the option of simulating air conditioning operation during testing at other ambient test

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conditions provided it can demonstrate that the vehicle tailpipe exhaust emissions are representative of the emissions that would result from the SC03 cycle test procedure and the ambient conditions of paragraph 86.161-00. The Administrator has approved two optional air conditioning test simulation procedures, AC1 and AC2, for the 2001 to 2003 model years only. If a manufacturer desires to conduct an alternative SC03 test simulation other than AC1 and AC2, or the AC1 and AC2 simulations for the 2004 and subsequent model years, the simulation test procedure must be approved in advance by the Administrator.

[62 FR 31242, June 6, 1997. Redesignated and amended at 63 FR 987, Jan. 7, 1998]

### § 86.1774-99 Vehicle preconditioning.

The provisions of § 86.132 apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.132 (a) through (e) apply to this subpart, with the following additional requirements:

(1) The UDDS performed prior to a non-regeneration emission test shall not contain a regeneration (diesel light-duty vehicles and light-duty trucks equipped with periodically regenerating trap oxidizer systems only). A gasoline fueled test vehicle may not be used to set dynamometer horsepower.

(2) [Reserved]

(b) [Reserved]

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998]

### § 86.1775-99 Exhaust sample analysis.

The following requirements shall apply to TLEVs, LEVs, ULEVs, and ZEVs certified under the provisions of this subpart:

(a) The requirements in § 86.140;

(b) The requirements in Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1).

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998]

### § 86.1776-99 Records required.

(a) The provisions of § 86.142 apply to this subpart.

(b) In addition to the provisions of § 86.142, the following provisions apply to this subpart:

(1) The manufacturer shall record in the durability-data vehicle logbook, the number of regenerations that occur during the 50,000 mile durability test of each diesel light-duty vehicle and light-duty truck equipped with a periodically regenerating trap oxidizer system. The manufacturer shall include, for each regeneration: the date and time of the start of regeneration, the duration of the regeneration, and the accumulated mileage at the start and the end of regeneration. The number of regenerations will be used in the calculation of the deterioration factor or other durability demonstration under § 86.1823-01 and subsequent model year provisions.

(2) The requirements in Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1).

(3) For additional record requirements see §§ 86.1770, 86.1771, 86.1772, 86.1773, 86.1774, and 86.1777.

[62 FR 31242, June 6, 1997. Redesignated at 63 FR 987, Jan. 7, 1998, as amended at 64 FR 23925, May 4, 1999]

EFFECTIVE DATE NOTE: At 62 FR 31242, June 6, 1997, subpart R was added, effective Aug. 5, 1997. Section 86.1776-99 contains information collection requirements and will not become effective until approval has been given by the Office of Management and Budget.

### § 86.1777-99 Calculations; exhaust emissions.

The provisions of § 86.144 apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.144(b) apply to this subpart, with the following additional requirement:

(1) Organic material non-methane hydrocarbon equivalent mass for ethanol vehicles:

$$\text{OMNMHCE}_{\text{mass}} = \text{NMHC}_{\text{mass}} + (13.8756/32.042) \times (\text{CH}_3\text{OH})_{\text{mass}} + (13.8756/46.064) \times (\text{CH}_3\text{CH}_2\text{OH})_{\text{mass}} + (13.8756/30.0262) \times (\text{HCHO})_{\text{mass}} + (13.8756/44.048) \times (\text{CH}_3\text{CHO})_{\text{mass}}$$

(2) [Reserved]