(p) For Tier 2 and interim non-Tier 2 vehicles fueled by gasoline, diesel, natural gas, liquefied petroleum gas, or hydrogen, manufacturers may measure non-methane hydrocarbons (NMHC) in lieu of NMOG. Manufacturers must multiply NMHC measurements from gasoline vehicles by an adjustment factor of 1.04 before comparing with the NMOG standard to determine compliance with that standard. For vehicles fueled by natural gas, liquefied petroleum gas, hydrogen manufacturers must propose an adjustment factor to adjust NMHC results to properly represent NMOG results. Such factors must be based upon comparative testing of NMOG and NMHC emissions and be approved in advance by the Administrator.

§ 86.1810–09 General standards; increase in emissions; unsafe condition; waivers.

Section 86.1810–09 includes text that specifies requirements that differ from § 86.1810–01. Where a paragraph in § 86.1810–01 is identical and applicable to § 86.1810–09, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.1810–01.” Where a corresponding paragraph of § 86.1810–01 is not applicable, this is indicated by the statement “[Reserved]”. This section applies to model year 2009 and later light-duty vehicles and light-duty trucks fueled by gasoline, diesel, methanol, ethanol, natural gas and liquefied petroleum gas fuels. This section also applies to MDPVs and complete heavy-duty vehicles certified according to the provisions of this subpart applicable to methanol fueled vehicles are also applicable to Tier 2 and interim non-Tier 2 ethanol fueled vehicles.

(a) through (e) [Reserved] For guidance see § 86.1810–01.

(f) Altitude requirements. (1) All emission standards apply at low altitude conditions and at high altitude conditions, except for the following standards, which apply only at low altitude conditions:

(i) The supplemental exhaust emission standards as described in § 86.1811–04(f);

(ii) The cold temperature NMHC emission standards as described in § 86.1811–10(g);

(iii) The evaporative emission standards as described in § 86.1811–09(e).

(2) For vehicles that comply with the cold temperature NMHC standards described in § 86.1811–10(g) and the CO, N₂O, and CH₄ exhaust emission standards described in § 86.1818–12, manufacturers must submit an engineering evaluation indicating that common calibration approaches are utilized at high altitudes. Any deviation from low altitude emission control practices must be included in the auxiliary emission control device (AEC) descriptions submitted at certification. Any AEC specific to high altitude must require engineering emission data for EPA evaluation to quantify any emission impact and validity of the AEC.

(g) through (p) [Reserved] For guidance see § 86.1810–01.

§ 86.1811–01 Emission standards for light-duty vehicles.

This section applies to 2001 and later model year light-duty vehicles fueled by gasoline, diesel, methanol, natural gas and liquefied petroleum gas fuels except as noted. Multi-fueled vehicles shall comply with all requirements established for each consumed fuel (or blend of fuels in the case of flexible fueled vehicles). The standards of this subpart apply to both certification and in-use vehicles unless otherwise indicated. This section also applies to hybrid electric vehicles and zero emission vehicles. Unless otherwise specified, requirements and provisions of this subpart applicable to methanol fueled vehicles are also applicable to Tier 2 and interim non-Tier 2 ethanol fueled vehicles.
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Exhaust emission standards. (1) Exhaust emissions shall not exceed the following standards at intermediate useful life:

(i) Total hydrocarbons: 0.41 grams per mile, except natural gas, which has no standard.

(ii) Non-methane hydrocarbons: 0.25 grams per mile.

(iii) Carbon monoxide: 3.4 grams per mile.

(iv) Oxides of nitrogen: 0.4 grams per mile except diesel fuel which has a 1.0 gram per mile standard.

(v) Particulate matter: 0.08 grams per mile.

(2) Exhaust emissions shall not exceed the following standards at full useful life:

(i) Nonmethane hydrocarbon and oxides of nitrogen composite: 0.65 grams per mile except diesel fuel which has a 1.48 gram per mile standard.

(ii) Carbon monoxide. Regulated vehicles shall meet at least one of the following two sets of standards:

(A) Individual US06 and SC03 Air Conditioning compliance. Comply with both the following standards:

(1) 3.7 grams per mile on the A/C test, not applicable to diesel fueled vehicles; and

(2) 11.1 grams per mile on the US06 test; or

(B) Composite Carbon Monoxide Standard: 4.2 grams per mile.

(c) Cold temperature emission standards. Exhaust emissions from gasoline-fueled light-duty vehicles shall not exceed the cold temperature CO standard of 10.0 grams carbon monoxide per mile for an intermediate useful life of 50,000 miles.

(d) Evaporative emission standards. Evaporative emissions from gasoline-fueled, natural gas-fueled, liquefied petroleum gas-fueled, and methanol-fueled light-duty vehicles shall not exceed the following standards. The standards apply equally to certification and in-use vehicles. The spitback standard also applies to newly assembled vehicles.

(1) Hydrocarbons. (i) For the full three-diurnal test sequence, diurnal plus hot soak measurements: 2.0 grams per test.

(ii) Gasoline and methanol-fueled only. For the supplemental two-diurnal test sequence, diurnal plus hot soak measurements: 2.5 grams per test.

(iii) Gasoline and methanol-fueled only. For the running loss test: 0.05 grams per mile.

(iv) Gasoline and methanol-fueled only. For the fuel dispensing spitback test: 1.0 gram hydrocarbon (carbon for methanol-fueled) per test.

(e) Refueling emissions. Refueling emissions from 2001 and later model year light-duty vehicles shall not exceed the following standards:

(1) For gasoline-fueled, diesel fueled, and methanol-fueled vehicles: 0.20 grams hydrocarbon per gallon (0.003 gram per liter) of fuel dispensed.

(a) Applicability. (1) This section contains regulations implementing emission standards for all LDVs, LDTs and MDPVs. This section applies to 2004 and later model year LDVs, LDTs and MDPVs fueled by gasoline, diesel, methanol, ethanol, natural gas and liquefied petroleum gas fuels, except as noted. Additionally, this section contains provisions applicable to hybrid electric vehicles (HEVs) and zero emission vehicles (ZEVs). Multi-fueled vehicles must comply with all requirements established for each consumed fuel.

(2) This section applies to LDVs, LDTs and MDPVs of model years prior to 2004, when manufacturers certify such vehicles to Tier 2 exhaust emission requirements to utilize alternate phase-in schedules, as allowed under paragraph (k)(6) of this section, and/or to earn early NOX credits for use in complying with the Tier 2 fleet average NOX standard which takes effect in the 2004 model year for LDV/LLDTs and 2008 for HLDT/MDPVs.

(3) Except where otherwise specified, this section applies instead of §§ 86.1811–01, 86.1812–01, 86.1813–01, 86.1814–01, 86.1814–02, 86.1815–01, and 86.1815–02.

(4) Except where otherwise specified, the provisions of this section apply equally to LDVs and all categories of LDTs, and to all MDPVs. Numerous provisions are applicable equally to HLDTs and MDPVs, as reflected by the term HLDT/MDPV. Numerous provisions apply equally to LDVs and LLDTs as reflected by the term LDV/LLDT.

(b) Test weight. (1) Except as required in paragraphs (b)(2) and (b)(4) of this section, or permitted under paragraph (b)(3) of this section, emission testing of all LDVs, LDTs and MDPVs to demonstrate compliance with any exhaust or evaporative emission standard set forth in this part must be on a loaded vehicle weight (LVW) basis, as that term is defined in this subpart.

(2) Interim non-Tier 2 HLDTs tested to Tier 1 SFTP standards, must be tested on an adjusted loaded vehicle weight (ALVW) basis, as that term is defined in this subpart, during the SC03 element of the SFTP.

(3) Except as required in paragraphs (b)(2) and (b)(4) of this section, interim non-Tier 2 HLDT/MDPVs may be tested on an ALVW basis or an LVW basis to demonstrate compliance with any exhaust or evaporative emission standard set forth in this part.

(4) MDPVs certified to bin 11 standards from Tables S04–1 and –2 must be tested on an ALVW basis to demonstrate compliance with any exhaust emission standard set forth in this part.

(c) Tier 2 FTP exhaust emission standards. Exhaust emissions from Tier 2 vehicles must not exceed the standards in Table S04–1 of this section at full useful life when tested over the Federal Test Procedure (FTP) described in subpart B of this part. Exhaust emissions from Tier 2 vehicles must not exceed the standards in Table S04–2 of this section at intermediate useful life, if applicable, when tested over the FTP.

(1) For a given test group a manufacturer desires to certify to operate only on one fuel, the manufacturer must select a set of standards from the same...