

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.

(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 supplemental exhaust emission standards, cold temperature NMHC emission standards, and the evaporative emission standards as described in § 86.1811-09(e). Supplemental exhaust emission standards, as described in § 86.1811-04(f), apply only at low altitude conditions. Cold temperature NMHC emission standards, as described in § 86.1811-10(g), apply only at low altitude conditions. Tier 2 evaporative emission standards apply at high altitude conditions as specified in § 86.1810-01(f) and (j), and § 86.1811-04(e).

(2) For vehicles that comply with the cold temperature NMHC standards, 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.

[72 FR 8562, Feb. 26, 2007]

**§ 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. For methanol fueled vehicles, references in

this section to total hydrocarbons shall mean total hydrocarbon equivalents and references to non-methane hydrocarbons shall mean non-methane hydrocarbon equivalents. This section does not apply to 2004 and later model year vehicles, except as specifically referenced by § 86.1811-04.

(a) *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) [Reserved]

(ii) Non-methane hydrocarbons: 0.31 grams per mile.

(iii) Carbon monoxide: 4.2 grams per mile.

(iv) Oxides of nitrogen: 0.6 grams per mile except diesel fuel which has a 1.25 gram per mile standard.

(v) Particulate matter: 0.10 grams per mile.

(b) *Supplemental exhaust emission standards.* (1) Supplemental exhaust emissions from gasoline-fueled and diesel-fueled light-duty vehicles shall not exceed the following standards at intermediate 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) 3.0 grams per mile on the A/C test, not applicable to diesel fueled vehicles; and

(2) 9.0 grams per mile on the US06 test; or

(B) *Composite Carbon Monoxide Standard*: 3.4 grams per mile.

(2) Supplemental exhaust emissions from gasoline-fueled and diesel-fueled light-duty vehicles shall not exceed the following standards at full useful life:

(i) Nonmethane hydrocarbon and oxides of nitrogen composite: 0.91 grams per mile except diesel-fueled which have a 2.07 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.

(2) [Reserved]

(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 (0.053 gram per liter) of fuel dispensed.

(2) For liquefied petroleum gas-fueled vehicles: 0.15 grams hydrocarbon per gallon (0.04 gram per liter) of fuel dispensed.

(f) *Certification short test*. Certification short test emissions from gasoline-fueled Otto-cycle light-duty vehicles shall not exceed the following standards:

(1) Hydrocarbons: 100 ppm as hexane.

(2) Carbon monoxide: 0.5%.

(g) Manufacturers may request to group light-duty vehicles into the same test group as vehicles subject to more stringent standards, so long as those light-duty vehicles meet the most stringent standards applicable to any vehicle within that test group, as provided at § 86.1827(a)(5) and (d)(4).

[64 FR 23925, May 4, 1999, as amended at 65 FR 6854, Feb. 10, 2000; 65 FR 59970, Oct. 6, 2000]

**§ 86.1811-04 Emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.**

(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 also 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 NO<sub>x</sub> credits for use in complying with the Tier 2 fleet average NO<sub>x</sub> standard which takes effect in the