

## Environmental Protection Agency

## § 86.099-10

(iv) CST emissions from gasoline-fueled Otto-cycle light-duty trucks measured and calculated in accordance with subpart O of this part may not exceed the standards listed in paragraphs (a)(1)(iv) (A) and (B) of this section.

(A) Hydrocarbons: 100 ppm as hexane.

(B) Carbon monoxide: 0.5%.

(2) [Reserved]

(3) The standards set forth in paragraph (a)(1)(iv) of this section refer to the exhaust emitted during the CST as set forth in subpart O of this part and measured and calculated in accordance with those provisions.

(b) Evaporative emissions from light-duty trucks 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. For certification vehicles only, manufacturers may conduct testing to quantify a level of nonfuel background emissions for an individual test vehicle. Such a demonstration must include a description of the source(s) of emissions and an estimated decay rate. The demonstrated level of nonfuel background emissions may be subtracted from emission test results from certification vehicles if approved in advance by the Administrator.

(1) *Hydrocarbons (for gasoline-fueled, natural gas-fueled, and liquefied petroleum gas-fueled vehicles)*. (i)(A) For gasoline-fueled heavy light-duty trucks with a nominal fuel tank capacity of at least 30 gallons:

(1) For the full three-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 2.5 grams per test.

(2) For the supplemental two-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 3.0 grams per test.

(B) For all other light-duty trucks:

(1) For the full three-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 2.0 grams per test.

(2) For the supplemental two-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements (gasoline-fueled vehicles only): 2.5 grams per test.

(ii) *Running loss test (gasoline-fueled vehicles only)*: 0.05 grams per mile.

(iii) *Fuel dispensing spitback test (gasoline-fueled vehicles only)*: 1.0 grams per test.

(2) *Total Hydrocarbon Equivalent (for methanol-fueled vehicles)*. (i)(A) For heavy light-duty trucks with nominal fuel tank capacity of at least 30 gallons:

(1) For the full three-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 2.5 grams carbon per test.

(2) For the supplemental two-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 3.0 grams carbon per test.

(B) For all other light-duty trucks:

(1) For the full three-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 2.0 grams carbon per test.

(2) For the supplemental two-diurnal test sequence described in §86.130-96, diurnal plus hot soak measurements: 2.5 grams carbon per test.

(i) *Running loss test*: 0.05 grams carbon per mile.

(iii) *Fuel dispensing spitback test*: 1.0 gram carbon per test.

(3) The standards set forth in paragraphs (b) (1) and (2) of this section refer to a composite sample of evaporative emissions collected under the conditions and measured in accordance with the procedures set forth in subpart B of this part.

(4) All fuel vapor generated in a gasoline- or methanol-fueled light-duty truck during in-use operations shall be routed exclusively to the evaporative control system (e.g., either canister or engine purge). The only exception to this requirement shall be for emergencies.

(c) [Reserved]. For guidance see §86.097-9.

(d)-(f) [Reserved]

(g)-(k) [Reserved]. For guidance see §86.097-9.

[58 FR 16025, Mar. 24, 1993, as amended at 58 FR 58422, Nov. 1, 1993; 59 FR 48503, Sept. 21, 1994; 60 FR 43888, Aug. 23, 1995]

### **§ 86.099-10 Emission standards for 1999 and later model year Otto-cycle heavy-duty engines and vehicles.**

Section 86.099-10 includes text that specifies requirements that differ from

**§ 86.099-10**

**40 CFR Ch. I (7-1-08 Edition)**

§ 86.098-10. Where a paragraph in § 86.98-10 is identical and applicable to § 86.099-10, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.098-10.”

(a) [Reserved]. For guidance see § 86.098-10.

(b) Evaporative emissions from heavy-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. For certification vehicles only, manufacturers may conduct testing to quantify a level of nonfuel background emissions for an individual test vehicle. Such a demonstration must include a description of the source(s) of emissions and an estimated decay rate. The demonstrated level of nonfuel background emissions may be subtracted from emission test results from certification vehicles if approved in advance by the Administrator.

(1) *Hydrocarbons (for vehicles equipped with gasoline-fueled, natural gas-fueled or liquefied petroleum gas-fueled engines).*

(i) For vehicles with a Gross Vehicle Weight Rating of up to 14,000 lbs:

(A)(1) For the full three-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 3.0 grams per test.

(2) For the supplemental two-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements (gasoline-fueled vehicles only): 3.5 grams per test.

(B) Running loss test (gasoline-fueled vehicles only): 0.05 grams per mile.

(C) Fuel dispensing spitback test (gasoline-fueled vehicles only): 1.0 gram per test.

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 14,000 lbs:

(A)(1) For the full three-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 4.0 grams per test.

(2) For the supplemental two-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements (gasoline-fueled vehicles only): 4.5 grams per test.

(B) Running loss test (gasoline-fueled vehicles only): 0.05 grams per mile.

(2) *Total Hydrocarbon Equivalent (for vehicles equipped with methanol-fueled engines).* (i) For vehicles with a Gross Vehicle Weight Rating of up to 14,000 lbs:

(A)(1) For the full three-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 3.0 grams carbon per test.

(2) For the supplemental two-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 3.5 grams carbon per test.

(B) Running loss test: 0.05 grams carbon per mile.

(C) Fuel dispensing spitback test: 1.0 gram carbon per test.

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 14,000 lbs:

(A)(1) For the full three-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 4.0 grams carbon per test.

(2) For the supplemental two-diurnal test sequence described in § 86.1230-96, diurnal plus hot soak measurements: 4.5 grams carbon per test.

(B) Running loss test: 0.05 grams carbon per mile.

(3)(i) For vehicles with a Gross Vehicle Weight Rating of up to 26,000 lbs, the standards set forth in paragraphs (b)(1) and (b)(2) of this section refer to a composite sample of evaporative emissions collected under the conditions and measured in accordance with the procedures set forth in subpart M of this part.

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 26,000 lbs., the standards set forth in paragraphs (b)(1)(ii) and (b)(2)(ii) of this section refer to the manufacturer's engineering design evaluation using good engineering practice (a statement of which is required in § 86.091-23(b)(4)(ii)).

(4) All fuel vapor generated in a gasoline- or methanol-fueled heavy-duty vehicle during in-use operations shall be routed exclusively to the evaporative control system (e.g., either canister or engine purge). The only exception to this requirement shall be for emergencies.

(c) and (d) [Reserved]. For guidance see § 86.098-10.

(e) The standards described in this section do not apply to Otto-cycle medium-duty passenger vehicles (MDPVs) that are subject to regulation under subpart S of this part, except as specified in subpart S of this part. The standards described in this section also do not apply to Otto-cycle engines used in such MDPVs, except as specified in subpart S of this part. The term “medium-duty passenger vehicle” is defined in § 86.1803.

[58 FR 16026, Mar. 24, 1993, as amended at 59 FR 48503, Sept. 21, 1994; 60 FR 43888, Aug. 23, 1995; 65 FR 6848, Feb. 10, 2000]

**§ 86.099–11 Emission standards for 1999 and later model year diesel heavy-duty engines and vehicles.**

(a) Exhaust emissions from new 1999 and later model year diesel heavy-duty engines shall not exceed the following:

(1)(i) *Hydrocarbons (for diesel engines fueled with either petroleum-fuel or liquefied petroleum gas)*. 1.3 grams per brake horsepower-hour (0.48 gram per megajoule), as measured under transient operating conditions.

(ii) *Total Hydrocarbon Equivalent (for methanol-fueled diesel engines)*. 1.3 grams per brake horsepower-hour (0.48 gram per megajoule), as measured under transient operating conditions.

(iii) *Nonmethane hydrocarbons (for natural gas-fueled diesel engines)*. 1.2 grams per brake horsepower-hour (0.45 gram per megajoule), as measured under transient operating conditions.

(2) *Carbon monoxide*. (i) 15.5 grams per brake horsepower-hour (5.77 grams per megajoule), as measured under transient operating conditions.

(ii) 0.50 percent of exhaust gas flow at curb idle (methanol-, natural gas-, and liquefied petroleum gas-fueled diesel only).

(3) *Oxides of Nitrogen*. (i) 4.0 grams per brake horsepower-hour (1.49 grams per megajoule), as measured under transient operating conditions.

(ii) A manufacturer may elect to include any or all of its diesel HDE families in any or all of the NO<sub>x</sub> or NO<sub>x</sub> plus NMHC ABT programs for HDEs, within the restrictions described in § 86.098–15 as applicable. If the manufacturer elects to include engine families in any of these programs, the NO<sub>x</sub> FELs may not exceed 5.0 grams per

brake horsepower-hour (1.9 grams per megajoule). This ceiling value applies whether credits for the family are derived from averaging, trading or banking programs.

(4) *Particulate*. (i) For diesel engines to be used in urban buses, 0.05 gram per brake horsepower-hour (0.019 gram per megajoule) for certification testing and selective enforcement audit testing, and 0.07 gram per brake horsepower-hour (0.026 gram per megajoule) for in-use testing, as measured under transient operating conditions.

(ii) For all other diesel engines only, 0.10 gram per brake horsepower-hour (0.037 gram per megajoule), as measured under transient operating conditions.

(iii) A manufacturer may elect to include any or all of its diesel HDE families in any or all of the particulate ABT programs for HDEs, within the restrictions described in § 86.098–15 as applicable. If the manufacturer elects to include engine families in any of these programs, the particulate FEL may not exceed:

(A) For engine families intended for use in urban buses, 0.25 gram per brake horsepower-hour (0.093 gram per megajoule);

(B) For engine families *not* intended for use in urban buses, 0.60 gram per brake horsepower-hour (0.22 gram per megajoule). This ceiling value applies whether credits for the family are derived from averaging, trading or banking programs.

(b)(1) The opacity of smoke emission from new 1999 and later model year diesel heavy-duty engine shall not exceed:

(i) 20 percent during the engine acceleration mode.

(ii) 15 percent during the engine lugging mode.

(iii) 50 percent during the peaks in either mode.

(2) The standards set forth in paragraph (b)(1) of this section refer to exhaust smoke emissions generated under the conditions set forth in subpart I of this part and measured and calculated in accordance with those procedures.

(3) Evaporative emissions (total of non-oxygenated hydrocarbons plus methanol) from heavy-duty vehicles equipped with methanol-fueled diesel