

Environmental Protection Agency

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and heavy-duty vehicles shall not exceed the applicable standards.

(C) Small volume manufacturers, as defined in § 86.092–14(b) (1) and (2), are exempt from the phase-in described in paragraph (b)(3)(v)(A) of this section. For small volume manufacturers, the standards of § 86.094–11(b)(3), and the associated test procedures, apply for the 1998 model year. Beginning in the 1999 model year, 100 percent compliance with the standards of this section is required. This exemption does not apply to small volume engine families as defined in § 86.092–14(b)(5).

(4) *Evaporative emissions* from 1998 and later model year heavy-duty vehicles equipped with natural gas-fueled or liquefied petroleum gas-fueled heavy-duty engines shall not exceed the following standards. The standards apply equally to certification and in-use vehicles.

(i) For vehicles with a Gross Vehicle Weight Rating of up to 14,000 pounds for the full three-diurnal test sequence described in § 86.1230–96, diurnal plus hot soak measurements: 3.0 grams per test.

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 14,000 pounds for the full three-diurnal test sequence described in § 86.1230–96, diurnal plus hot soak measurements: 4.0 grams per test.

(iii)(A) For vehicles with a Gross Vehicle Weight Rating of up to 26,000 pounds, the standards set forth in paragraph (b)(4) of this section refer to a composite sample of evaporative emissions collected under the conditions set forth in subpart M of this part and measured in accordance with those procedures.

(B) For vehicles with a Gross Vehicle Weight Rating greater than 26,000 lbs, the standards set forth in paragraphs (b)(3)(ii) and (b)(4)(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)).

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any new 1998 or later model year methanol-, natural gas-, or liquefied petroleum gas-fueled diesel, or any naturally-aspirated diesel heavy-duty engine. For petroleum-fueled engines only, this provision does not apply to

engines using turbochargers, pumps, blowers, or superchargers for air induction.

(d) Every manufacturer of new motor vehicle engines subject to the standards prescribed in this section shall, prior to taking any of the actions specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicle engines in accordance with applicable procedures in subpart I or N of this part to ascertain that such test engines meet the requirements of paragraphs (a), (b), (c), and (d) of this section.

[58 FR 15801, Mar. 24, 1993, as amended at 58 FR 34536, June 28, 1993; 59 FR 48502, Sept. 21, 1994; 60 FR 43888, Aug. 23, 1995; 62 FR 54716, Oct. 21, 1997]

§ 86.098–14 Small-volume manufacturers certification procedures.

Section 86.098–14 includes text that specifies requirements that differ from §§ 86.094–14 or 86.095–14. Where a paragraph in § 86.094–14 or § 86.095–14 is identical and applicable to § 86.098–14, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094–14.” or “[Reserved]. For guidance see § 86.095–14.”

(a)–(c)(7)(i)(C)(3) [Reserved]. For guidance see § 86.094–14.

(c)(7)(i)(C)(4) For light-duty vehicle, light-duty truck, and heavy-duty vehicle evaporative and/or refueling emissions (as applicable) and for light-duty truck, and heavy-duty engine exhaust emissions, deterioration factors shall be determined in accordance with § 86.098–24.

(c)(7)(ii)–(c)(11)(ii)(B) introductory text [Reserved]. For guidance see § 86.094–14.

(c)(11)(ii)(B)(I) Engine evaporative/refueling family names and vehicle (or engine) configurations.

(c)(11)(ii)(B)(2)–(c)(11)(ii)(B)(15) [Reserved]. For guidance see § 86.094–14.

(c)(11)(ii)(B)(16)–(c)(11)(ii)(B)(18) [Reserved]. For guidance see § 86.095–14.

(c)(11)(ii)(B)(19) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family, a description of any unique procedures required to perform evaporative and/or refueling emission tests (as applicable) (including canister working capacity, canister bed volume,

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and fuel temperature profile for the running loss test) for all vehicles in that evaporative/refueling emission family, and a description of the method used to develop those unique procedures.

(20) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family:

(i) Canister working capacity, according to the procedures specified in § 86.132-96(h)(1)(iv);

(ii) Canister bed volume; and

(iii) Fuel temperature profile for the running loss test, according to the procedures specified in § 86.129-94(d).

(c)(11)(ii)(C)-(c)(11)(ii)(D)(5) [Reserved]. For guidance see § 86.095-14.

(c)(11)(ii)(D)(6) [Reserved].

(c)(11)(ii)(D)(7)-(c)(15) [Reserved]. For guidance see § 86.094-14.

[59 FR 16289, Apr. 6, 1994]

§ 86.098-15 NO_x and particulate averaging, trading, and banking for heavy-duty engines.

Section 86.098-15 includes text that specifies requirements that differ from § 86.094-15. Where a paragraph in § 86.094-15 is identical and applicable to § 86.098-15, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094-15.”

(a)-(b) [Reserved]. For guidance see § 86.094-15.

(c)(1) For each participating engine family, NO_x and particulate emission credits (positive or negative) are to be calculated according to one of the following equations and rounded, in accordance with ASTM E29-93a, to the nearest one-tenth of a Megagram (MG). Consistent units are to be used throughout the equation.

(i) For determining credit need for all engine families and credit availability for engine families generating credits for averaging programs only:

$$\text{Emission credits} = (\text{Std} - \text{FEL}) \times (\text{CF}) \times (\text{UL}) \times (\text{Production}) \times (10^{-6})$$

(ii) For determining credit availability for engine families generating credits for trading or banking programs:

$$\text{Emission credits} = (\text{Std} - \text{FEL}) \times (\text{CF}) \times (\text{UL}) \times (\text{Production}) \times (10^{-6}) \times (\text{Discount})$$

(iii) For purposes of the equations in paragraphs (c)(1)(i) and (ii) of this section:

Std = the current and applicable heavy-duty engine NO_x or particulate emission standard in grams per brake horsepower hour or grams per Megajoule.

FEL = the NO_x or particulate family emission limit for the engine family in grams per brake horsepower hour or grams per Megajoule.

CF = a transient cycle conversion factor in BHP-hr/mi or MJ/mi, as given in paragraph (c)(2) of this section.

UL = the useful life, or alternative life as described in paragraph (f) of § 86.094-21, for the given engine family in miles.

Production = the number of engines produced for U.S. sales within the given engine family during the model year. Quarterly production projections are used for initial certification. Actual production is used for end-of-year compliance determination.

Discount = a one-time discount applied to all credits to be banked or traded within the model year generated. The discount applied here is 0.8. Banked credits traded in a subsequent model year will not be subject to an additional discount. Banked credits used in a subsequent model year's averaging program will not have the discount restored.

(2)(i) The transient cycle conversion factor is the total (integrated) cycle brake horsepower-hour or Megajoules, divided by the equivalent mileage of the applicable transient cycle. For Otto-cycle heavy-duty engines, the equivalent mileage is 6.3 miles. For diesel heavy-duty engines, the equivalent mileage is 6.5 miles.

(ii) When more than one configuration is chosen by EPA to be tested in the certification of an engine family (as described in § 86.085-24), the conversion factor used is to be based upon a production weighted average value of the configurations in an engine family to calculate the conversion factor.

(d)-(i) [Reserved]. For guidance see § 86.094-15.

(j) *Optional program for early banking.* Provisions set forth in paragraphs (a) through (i) of this section apply except as specifically stated otherwise in paragraph (j) of this section.

(1) To be eligible for the optional program described in paragraph (j) of this section, the following must apply:

(i) Credits are generated from diesel cycle heavy-duty engines.