

(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 N or P of this part to ascertain that such test engines meet the requirements of paragraphs (a) and (c) of this section.

(Secs. 202, 203, 206, 207, 208, 301a, Clean Air Act, as amended; 42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7601a)

[50 FR 10652, Mar. 15, 1985, as amended at 54 FR 14464, Apr. 11, 1989; 55 FR 30622, July 26, 1990; 59 FR 48492, Sept. 21, 1994]

§ 86.091-11 Emission standards for 1991 and later model year diesel heavy-duty engines.

(a)(1) Exhaust emissions from new 1991 and later model year diesel heavy-duty engines shall not exceed the following:

(i)(A) *Hydrocarbons (for petroleum-fueled diesel engines)*. 1.3 grams per brake horsepower-hour (0.48 gram per megajoule), as measured under transient operating conditions.

(B) *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.

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

(B) 0.50 percent of exhaust gas flow at curb idle (methanol-fueled diesel only).

(iii) *Oxides of nitrogen*. (A) 5.0 grams per brake horsepower-hour (1.9 grams per megajoule), as measured under transient operating conditions.

(B) A manufacturer may elect to include any or all of its diesel heavy-duty engine families in any or all of the NO_x averaging, trading, or banking programs for heavy-duty engines, within the restrictions described in § 86.091-15. If the manufacturer elects to include engine families in any of these programs, the NO_x FELs may not exceed 6.0 grams per brake horsepower-hour (2.2 grams per megajoule). This ceiling value applies whether credits for the family are derived from averaging, trading or banking programs.

(iv) *Particulate* (A) For all diesel engines, including those to be used in urban buses, 0.25 gram per brake horsepower-hour (0.093 gram per megajoule) as measured under transient operating conditions.

(B) [Reserved]

(C) A manufacturer may elect to include any or all of its diesel heavy-duty engine families in any or all of the particulate averaging, trading, or banking programs for heavy-duty engines, within the restrictions described in § 86.091-15. If the manufacturer elects to include engine families in any of these programs, the particulate FELs may not exceed 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.

(2) The standards set forth in paragraph (a)(1) of this section refer to the exhaust emitted over operating schedules as set forth in paragraph (f)(2) of appendix I of this part, and measured and calculated in accordance with the procedures set forth in subpart N of this part, except as noted in § 86.091-23(c)(2) (i) and (iii).

(b)(1) The opacity of smoke emission from new 1991 and later model year diesel heavy-duty engines 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 idler 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 1991 and later model year heavy-duty vehicles equipped with methanol-fueled diesel engines shall not exceed:

(i) For vehicles with a Gross Vehicle Weight Rating of up to 14,000 lbs, 3.0 grams per test.

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 14,000 lbs, 4.0 grams per test.

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

(ii) For vehicles with a Gross Vehicle Weight Rating of greater than 26,000 lbs, the standard set forth in paragraph (b)(3)(ii) of this section refers to the manufacturers' 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 1991 or later model year methanol-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), and (c) and (d) of this section.

(Secs. 202, 203, 206, 207, 208, 301a, Clean Air Act, as amended; 42 U.S.C. 7521, 7522, 7525, 7541, 7542, 7601a)

[50 FR 10653, Mar. 15, 1985, as amended at 54 FR 14465, Apr. 11, 1989; 55 FR 30622, July 26, 1990; 56 FR 64711, Dec. 12, 1991]

§ 86.091-15 NO_x and particulate averaging, trading, and banking for heavy-duty engines.

(a)(1) Heavy-duty engines eligible for the NO_x and particulate averaging, trading, and banking programs are described in the applicable emission standards sections in this subpart. Participation in these programs is voluntary.

(2)(i) Engine families with FELs exceeding the applicable standard shall

obtain emission credits in a mass amount sufficient to address the shortfall. Credits may be obtained from averaging, trading, or banking, within the averaging set restrictions described in this section.

(ii) Engine families with FELs below the applicable standard will have emission credits available to average, trade, bank or a combination thereof. Credits may not be used to offset emissions that exceed an FEL. Credits may not be used to remedy an in-use nonconformity determined by a Selective Enforcement Audit or by recall testing. However, credits may be used to allow subsequent production of engines for the family in question if the manufacturer elects to recertify to a higher FEL.

(iii) Engine families within a given averaging set may not both generate and use like emission credits in the same model year. This restriction is to be applied on a pollutant-specific basis.

(b) Participation in the NO_x and/or particulate averaging, trading, and banking programs shall be done as follows.

(1) During certification, the manufacturer shall:

(i) Declare its intent to include specific engine families in the averaging, trading and/or banking programs. Separate declarations are required for each program and for each pollutant (*i.e.*, NO_x and particulate).

(ii) Declare an FEL for each engine family participating in one or more of these three programs.

(A) The FEL must be to the same level of significant digits as the emission standard (one-tenth of a gram per brake horsepower for NO_x emissions and one-hundredth of a gram per brake horsepower-hour for particulate emissions).

(B) In no case may the FEL exceed the upper limit prescribed in the section concerning the applicable heavy-duty engine NO_x and particulate emission standards.

(iii) Calculate the projected emission credits (+ / -) based on quarterly production projections for each participating family and for each pollutant (NO_x and particulate), using the equation in paragraph (c) of this section