

(g) It is not a violation of this part or the Clean Air Act for any person to refuse to permit EPA Enforcement Officers or EPA authorized representatives to conduct activities related to entry and access as authorized in this section without a warrant or court order.

[55 FR 30619, July 26, 1990]

§ 86.091-9 Emission standards for 1991 and later model year light-duty trucks.

(a)(1) The standards set forth in paragraphs (a) through (c) of this section shall apply to light-duty trucks sold for principal use at other than a designated high-altitude location. Exhaust emissions from 1991 and later model year light-duty trucks shall not exceed:

(i)(A) *Hydrocarbons (for petroleum-fueled Otto-cycle and diesel light-duty trucks)*. 0.80 gram per vehicle mile (0.50 gram per vehicle kilometer).

(B) *Total Hydrocarbon Equivalent (for methanol-fueled Otto-cycle and diesel light-duty trucks)*. 0.80 gram per vehicle mile (0.50 gram per vehicle kilometer).

(ii) *Carbon monoxide*.

(A) 10 grams per vehicle mile (6.2 grams per vehicle kilometer).

(B) 0.50 percent of exhaust gas flow at curb idle (for Otto-cycle and methanol-fueled diesel light-duty trucks only).

(iii) *Oxides of nitrogen*.

(A) For light-duty trucks up to and including 3,750 lbs loaded vehicle weight, 1.2 grams per vehicle mile (0.75 gram per vehicle kilometer).

(B) For light-duty trucks greater loaded vehicle weight, 1.7 grams per vehicle mile (1.1 grams per vehicle kilometer).

(C) A manufacturer may elect to include any light-duty truck engine families in the NO_x averaging program, provided that it does not elect to pay an NCP for noncompliance with any emission standard applicable to that light-duty truck family. Trucks produced for sale in California or in designated high-altitude areas may be averaged only within each of those areas. Petroleum-fueled and methanol-fueled engine families may not be averaged together. Otto-cycle and diesel engine families may not be averaged together. If the manufacturer elects to

participate in the NO_x averaging program, individual family NO_x emission limits may not exceed 2.3 grams per mile. If the manufacturer elects to average together NO_x emissions of light-duty trucks subject to the standards of paragraphs (a)(1)(iii)(A) and (a)(1)(iii)(B) of this section, its composite NO_x standard applies to the combined fleets of light-duty trucks up to and including, and over, 3750 lbs loaded vehicle weight included in the average, and is calculated as defined in § 86.088-2.

(iv) *Particulate (for diesel light-duty trucks only)*.

(A) For light-duty trucks up to and including 3,750 lbs loaded vehicle weight, 0.26 gram per vehicle mile (0.16 gram per vehicle kilometer).

(B) For light-duty trucks 3,751 lbs and greater loaded vehicle weight, 0.13 gram per vehicle mile (0.08 gram per vehicle kilometer).

(C) A manufacturer may elect to include any diesel light-duty truck engine families in the appropriate particulate averaging program (petroleum and methanol), provided that it does not elect to pay an NCP for noncompliance with any emission standard applicable to that light-duty truck family. Trucks produced for sale in California or in designated high-altitude areas may be averaged only within each of those areas, and light-duty trucks subject to the standard of paragraph (a)(1)(iv)(B) of this section may be averaged only with other light-duty trucks subject to the standard of paragraph (a)(1)(iv)(B) of this section. Averaging is not permitted between fuel types. If the manufacturer elects to average both light-duty trucks subject to the standards of paragraphs (a)(1)(iv)(A) of this section and light-duty vehicles together in the appropriate particulate averaging program, its composite particulate standard applies to the combined set of light-duty vehicles and light-duty trucks that are included in the average and is calculated as defined in § 86.088-2.

(2) The standards set forth in paragraphs (a)(1)(i), (a)(1)(ii)(A), (a)(1)(iii), and (a)(1)(iv) of this section refer to the exhaust emitted over a driving schedule as set forth in subpart B of this part and measured and calculated in

accordance with those procedures. The standard set forth in paragraph (a)(1)(ii)(B) of this section refers to the exhaust emitted at curb idle and measured and calculated in accordance with the procedures set forth in subpart P of this part.

(b) Fuel evaporative emissions from 1991 and later model year light-duty trucks shall not exceed (compliance with these standards is optional for 1991 model year methanol-fueled vehicles):

(1) *Hydrocarbons (for gasoline-fueled light-duty trucks)*. 2.0 grams per test.

(2) *Total Hydrocarbon Equivalent (for methanol-fueled light-duty trucks)*. 2.0 grams per test.

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

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any 1991 and later model year light-duty truck.

(d)(1) Model year 1991 and later light-duty trucks sold for principal use at a designated high-altitude location shall be capable of meeting the following exhaust emission standards when tested under high-altitude conditions:

(i)(A) *Hydrocarbons (for petroleum-fueled Otto-cycle and diesel light-duty trucks)*. 1.0 grams per vehicle mile (0.62 grams per vehicle kilometer).

(B) *Total Hydrocarbon Equivalent (for methanol-fueled Otto-cycle and diesel light-duty trucks)*. 1.0 gram per vehicle mile (0.62 gram per vehicle kilometer).

(ii) *Carbon Monoxide*. (A) 14 grams per vehicle mile (8.7 grams per vehicle kilometer).

(B) 0.50 percent of exhaust gas flow at curb idle (for Otto-cycle and methanol-fueled diesel light duty trucks only).

(iii) *Oxides of Nitrogen*. (A) For light-duty trucks up to and including 3,750 lbs loaded vehicle weight, 1.2 grams per vehicle mile (0.75 grams per vehicle kilometer).

(B) For light-duty trucks 3,751 lbs and greater loaded vehicle weight, 1.7 grams per vehicle mile (1.1 grams per vehicle kilometer).

(iv) *Particulate (for diesel light-duty trucks only)*. (A) For light-duty trucks up to and including 3,750 lbs loaded vehicle weight, 0.26 gram per vehicle mile (0.16 gram per vehicle kilometer).

(B) For light-duty trucks 3,751 lbs and greater loaded vehicle weight, 0.13 gram per vehicle mile (0.08 gram per vehicle kilometer).

(2) The standards set forth in paragraphs (d)(1)(i), (d)(1)(ii)(A), (d)(1)(iii), and (d)(1)(iv) of this section refer to the exhaust emitted over a driving schedule as set forth in subpart B of this part and measured and calculated in accordance with those procedures. The standard set forth in paragraph (d)(1)(ii)(B) of this section refers to the exhaust emitted at curb idle and measured and calculated in accordance with the procedures set forth in subpart P of this part.

(e) Fuel evaporative emissions from 1991 and later model year light-duty trucks sold for principal use at a designated high-altitude location, when tested under high-altitude conditions, shall not exceed:

(1) *Hydrocarbons (for gasoline-fueled light-duty trucks)*. 2.6 grams per test.

(2) *Total Hydrocarbon Equivalent (for methanol-fueled light-duty trucks)*. 2.6 grams per test.

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

(f) No crankcase emissions shall be discharged into the ambient atmosphere from any 1991 and later model year light-duty trucks sold for principal use at a designated high-altitude location.

(g)(1) Any light-duty truck that a manufacturer wishes to certify for sale at low altitude must be capable of meeting high-altitude emission standards (specified in paragraphs (d) through (f) of this section). The manufacturer may specify vehicle adjustments or modifications to allow the vehicle to meet high-altitude standards but these adjustments or modifications may not alter the vehicle's basic engine, inertia weight class, transmission configuration, and axle ratio.

(i) A manufacturer may certify unique configurations to meet the high-altitude standards but is not required to certify these vehicle configurations to meet the low-altitude standards.

(ii) Any adjustments or modifications that are recommended to be performed on vehicles to satisfy the requirements of paragraph (g)(1) of this section:

(A) Shall be capable of being effectively performed by commercial repair facilities, and

(B) Must be included in the manufacturer's application for certification.

(2) The manufacturer may exempt 1991 and later model year vehicles from compliance with the high-altitude emission standards set forth in paragraphs (d) and (e) of this section if the vehicles are not intended for sale at high altitude and if the following requirements are met. A vehicle configuration shall only be considered eligible for exemption if the requirements of either paragraph (g)(2) (i), (ii), (iii), or (iv) of this section are met.

(i) Its design parameters (displacement-to-weight ratio (D/W) and engine speed-to-vehicle-speed ratio (N/V)) fall within the exempted range for that manufacturer for that year. The exempted range is determined according to the following procedure:

(A) The manufacturer shall graphically display the D/W and N/V data of all vehicle configurations it will offer for the model year in question. The axis of the abscissa shall be D/W (where (D) is the engine displacement expressed in cubic centimeters and (W) is the gross vehicle weight (GVW) expressed in pounds), and the axis of the ordinate shall be N/V (where (N) is the crankshaft speed expressed in revolutions per minute and (V) is the vehicle speed expressed in miles per hour). At the manufacturer's option, either the 1:1 transmission gear ratio or the lowest numerical gear ratio available in the transmission will be used to determine N/V. The gear selection must be the same for all N/V data points on the manufacturer's graph. For each transmission/axle ratio combination, only the lowest N/V value shall be used in the graphical display.

(B) The product line is then defined by the equation, $N/V = C(D/W)^{-0.9}$

where the constant, C, is determined by the requirement that all the vehicle data points either fall on the line or lie to the upper right of the line as displayed on the graphs.

(C) The exemption line is then defined by the equation, $N/V = C(0.84 D/W)^{-0.9}$ where the constant, C, is the same as that found in paragraph (g)(2)(i)(B) of this section.

(D) The exempted range includes all values of N/V and D/W which simultaneously fall to the lower left of the exemption line as drawn on the graph.

(ii) Its design parameters fall within the alternate exempted range for that manufacturer that year. The alternate exempted range is determined by substituting rated horsepower (hp) for displacement (D) in the exemption procedure described in paragraph (g)(2)(i) of this section and by using the product line $N/V = C(\text{hp}/W)^{-0.9}$.

(A) Rated horsepower shall be determined by using the Society of Automotive Engineers Test Procedure J 1349, or any subsequent version of that test procedure. Any of the horsepower determinants within that test procedure may be used, as long as it is used consistently throughout the manufacturer's product line in any model year.

(B) No exemptions will be allowed under paragraph (g)(2)(ii) of this section to any manufacturer that has exempted vehicle configurations as set forth in paragraph (g)(2)(i) of this section.

(iii) Its acceleration time (the time it takes a vehicle to accelerate from 0 to a speed not less than 40 miles per hour and not greater than 50 miles per hour) under high-altitude conditions is greater than the largest acceleration time under low-altitude conditions for that manufacturer for that year. The procedure to be followed in making this determination is:

(A) The manufacturer shall list the vehicle configuration and acceleration time under low-altitude conditions of that vehicle configuration which has the highest acceleration time under low-altitude conditions of all the vehicle configurations it will offer for the model year in question. The manufacturer shall also submit a description of the methodology used to make this determination.

(B) The manufacturer shall then list the vehicle configurations and acceleration times under high-altitude conditions of all those vehicles configurations which have higher acceleration times under high-altitude conditions than the highest acceleration time at low altitude identified in paragraph (g)(2)(iii)(A) of this section.

(iv) In lieu of performing the test procedure of paragraph (g)(2)(iii) of this section, its acceleration time can be estimated based on the manufacturer's engineering evaluation, in accordance with good engineering practice, to meet the exemption criteria of paragraph (g)(2)(iii) of this section.

(3) The sale of a vehicle for principal use at a designated high-altitude location that has been exempted as set forth in paragraph (g)(2) of this section will be considered a violation of section 203(a)(1) of the Clean Air Act.

[53 FR 43876, Oct. 31, 1988, as amended at 54 FR 14612, Apr. 11, 1989; 55 FR 46627, Nov. 5, 1990]

§ 86.091-10 Emission standards for 1991 and later model year Otto-cycle heavy-duty engines and vehicles.

(a)(1) Exhaust emissions from new 1991 and later model year Otto-cycle heavy-duty engines shall not exceed (compliance with these standards is optional through the 1996 model year natural gas- and liquefied petroleum gas-fueled heavy-duty engines):

(i) For Otto-cycle heavy-duty engines fueled with either gasoline or liquefied petroleum gas, and intended for use in all vehicles except as provided in paragraph (a)(3) of this paragraph.

(A) *Hydrocarbons*. 1.1 grams per brake horsepower-hour (0.41 gram per megajoule), as measured under transient operating conditions.

(B) *Carbon monoxide*. (1) 14.4 grams per brake horsepower-hour (5.36 grams per megajoule), as measured under transient operating conditions.

(2) *For Otto-cycle heavy-duty engines fueled with either gasoline or liquefied petroleum gas and utilizing aftertreatment technology*. 0.50 percent of exhaust gas flow at curb idle.

(C) *Oxides of nitrogen*. (1) 5.0 grams per brake horsepower-hour (1.9 grams

per megajoule), as measured under transient operating conditions.

(2) A manufacturer may elect to include any or all of its gasoline-fueled Otto-cycle 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.

(3) A manufacturer may elect to include any or all of its liquefied petroleum gas-fueled Otto-cycle 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.

(ii) For Otto-cycle heavy-duty engines fueled with either gasoline or liquefied petroleum gas, and intended for use only in vehicles with a Gross Vehicle Weight Rating of greater than 14,000 lbs.

(A) *Hydrocarbons*. 1.9 grams per brake horsepower-hour (0.71 gram per megajoule), as measured under transient operating conditions.

(B) *Carbon Monoxide*. (1) 37.1 grams per brake horsepower-hour (13.8 grams per megajoule), as measured under transient operating conditions.

(2) *For Otto-cycle heavy-duty engines fueled with either gasoline or liquefied petroleum gas and utilizing aftertreatment technology*. 0.50 percent of exhaust gas flow at curb idle.

(C) *Oxides of nitrogen*. (1) 5.0 grams per brake horsepower-hour (1.9 grams per megajoule), as measured under transient operating conditions.

(2) A manufacturer may elect to include any or all of its gasoline-fueled Otto-cycle heavy-duty engine families in any or all of the NO_x averaging,