

**Environmental Protection Agency**

**§ 86.097-9**

(19) *Prohibited acts, liability and remedies.* (i) It is a prohibited act for any person to fail to promptly provide or cause a failure to promptly provide information as required by this paragraph (g), or to otherwise fail to comply or cause a failure to comply with any provision of this paragraph (g).

(ii) Any person who fails or causes the failure to comply with any provision of this paragraph (g) is liable for a violation of that provision. A corporation is presumed liable for any violations of this subpart that are committed by any of its subsidiaries, affiliates or parents that are substantially owned by it or substantially under its control.

(iii) Any person who violates a provision of this paragraph (g) shall be subject to a civil penalty of not more than \$32,500 per day for each violation. This maximum penalty is shown for calendar year 2004. Maximum penalty limits for later years may be set higher

based on the Consumer Price Index, as specified in 40 CFR part 19. In addition, such person shall be liable for all other remedies set forth in Title II of the Clean Air Act, remedies pertaining to provisions of Title II of the Clean Air Act, or other applicable provisions of law.

[68 FR 38449, June 27, 2003, as amended at 70 FR 40433, July 13, 2005]

**§ 86.097-9 Emission standards for 1997 and later model year light-duty trucks.**

(a)(1) *Standards—(i) Light light-duty trucks.* (A) Exhaust emissions from 1997 and later model year light light-duty trucks shall meet all standards in tables A97-1 and A97-2 in the rows designated with the applicable fuel type and loaded vehicle weight. Light light-duty trucks shall not exceed the applicable standards in table A97-1 and shall not exceed the applicable standards in table A97-2.

**TABLE A97-1—INTERMEDIATE USEFUL LIFE STANDARDS (G/MI) FOR LIGHT LIGHT-DUTY TRUCKS**

Fuel	LVW (lbs)	THC	NMHC	THCE	NMHCE	CO	NO <sub>x</sub>	PM
Gasoline	0-3750	.....	0.25	.....	.....	3.4	0.4	0.08
Gasoline	3751-5750	.....	0.32	.....	.....	4.4	0.7	0.08
Diesel	0-3750	.....	0.25	.....	.....	3.4	1.0	0.08
Diesel	3751-5750	.....	0.32	.....	.....	4.4	.....	0.08
Methanol	0-3750	.....	.....	.....	0.25	3.4	0.4	0.08
Methanol	3751-5750	.....	.....	.....	0.32	4.4	0.7	0.08
Natural Gas	0-3750	.....	0.25	.....	.....	3.4	0.4	0.08
Natural Gas	3751-5750	.....	0.32	.....	.....	4.4	0.7	0.08
LPG	0-3750	.....	0.25	.....	.....	3.4	0.4	0.08
LPG	3751-5750	.....	0.32	.....	.....	4.4	0.7	0.08

**TABLE A97-2—FULL USEFUL LIFE STANDARDS (G/MI) FOR LIGHT LIGHT-DUTY TRUCKS**

Fuel	LVW (lbs)	THC <sup>1</sup>	NMHC	THCE <sup>1</sup>	NMHCE	CO	NO <sub>x</sub>	PM
Gasoline	0-3750	0.80	0.31	.....	.....	4.2	0.6	0.10
Gasoline	3751-5750	0.80	0.40	.....	.....	5.5	0.97	0.10
Diesel	0-3750	0.80	0.31	.....	.....	4.2	1.25	0.10
Diesel	3751-5750	0.80	0.40	.....	.....	5.5	0.97	0.10
Methanol	0-3750	.....	.....	0.80	0.31	4.2	0.6	0.10
Methanol	3751-5750	.....	.....	0.80	0.40	5.5	0.97	0.10
Natural Gas	0-3750	.....	0.31	.....	.....	4.2	0.6	0.10
Natural Gas	3751-5750	.....	0.40	.....	.....	5.5	0.97	0.10
LPG	0-3750	0.80	0.31	.....	.....	4.2	0.6	0.10
LPG	3751-5750	0.80	0.40	.....	.....	5.5	0.97	0.10

<sup>1</sup> Full useful life is 11 years or 120,000 miles, whichever occurs first.

(B)(1) Vehicles subject to the standards of paragraph (a)(1)(i)(A) of this section shall be all actual U.S. sales of light-duty vehicles of the applicable model year by a manufacturer.

(2) A manufacturer can not use one set of engine families to meet its intermediate useful life standards and another to meet its full useful life standards. The same families which are used to meet the intermediate useful life

standards will be required without deviation to meet the corresponding full useful life standards.

(ii) *Heavy light-duty trucks.* (A) Exhaust emissions from 1997 and later model year heavy light-duty trucks shall meet all standards in tables A97-

3 and A97-4 in the rows designated with the applicable fuel type and adjusted loaded vehicle weight. Heavy light-duty trucks shall not exceed the applicable standards in table A97-3 and shall not exceed the applicable standards in table A97-4.

TABLE A97-3—INTERMEDIATE USEFUL LIFE STANDARDS (G/MI) FOR HEAVY LIGHT-DUTY TRUCKS

Fuel	ALVV (lbs)	THC	NMHC	THCE	NMHCE	CO	NO <sub>x</sub>	PM
Gasoline	3751-5750	.....	0.32	.....	.....	4.4	0.7	.....
Gasoline	>5750	.....	0.39	.....	.....	5.0	1.1	.....
Diesel	3751-5750	.....	0.32	.....	.....	4.4	.....	.....
Diesel	>5750	.....	0.39	.....	.....	5.0	.....	.....
Methanol	3751-5750	.....	.....	.....	0.32	4.4	0.7	.....
Methanol	>5750	.....	.....	.....	0.39	5.0	1.1	.....
Natural Gas	3751-5750	.....	0.32	.....	.....	4.4	0.7	.....
Natural Gas	>5750	.....	0.39	.....	.....	5.0	1.1	.....
LPG	3751-5750	.....	0.32	.....	.....	4.4	0.7	.....
LPG	>5750	.....	0.39	.....	.....	5.0	1.1	.....

TABLE A97-4—FULL USEFUL LIFE STANDARDS (G/MI) FOR HEAVY LIGHT-DUTY TRUCKS

Fuel	ALVV (lbs)	THC	NMHC	THCE	NMHCE	CO	NO <sub>x</sub>	PM
Gasoline	3751-5750	0.80	0.46	.....	.....	6.4	0.98	0.10
Gasoline	>5750	0.80	0.56	.....	.....	7.3	1.53	0.12
Diesel	3751-5750	0.80	0.46	.....	.....	6.4	0.98	0.10
Diesel	>5750	0.80	0.56	.....	.....	7.3	1.53	0.12
Methanol	3751-5750	.....	.....	0.80	0.46	6.4	0.98	0.10
Methanol	>5750	.....	.....	0.80	0.56	7.3	1.53	0.12
Natural Gas	3751-5750	.....	0.46	.....	.....	6.4	0.98	0.10
Natural Gas	>5750	.....	0.56	.....	.....	7.3	1.53	0.12
LPG	3751-5750	0.80	0.46	.....	.....	6.4	0.98	0.10
LPG	>5750	0.80	0.56	.....	.....	7.3	1.53	0.12

(B)(1) Vehicles subject to the standards of paragraph (a)(1)(ii)(A) of this section shall be all actual U.S. sales of light-duty vehicles of the applicable model year by a manufacturer.

(2) A manufacturer can not use one set of engine families to meet its intermediate useful life standards and another to meet its full useful life standards. The same families which are used to meet the intermediate useful life standards will be required without deviation to meet the corresponding full useful life standards.

(iii) Exhaust emissions of carbon monoxide from 1997 and later model year light-duty trucks shall not exceed 0.50 percent of exhaust gas flow at curb idle at a useful life of 11 years or 120,000 miles, whichever first occurs (for Otto-cycle and methanol-natural gas- and liquefied petroleum gas-fueled diesel-cycle light-duty trucks only).

(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) The standards set forth in paragraphs (a)(1)(i) and (a)(1)(ii) 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 test weight basis for light light-duty trucks, for the purposes of determining equivalent test weight as prescribed in § 86.129-94, shall be loaded vehicle weight. The test weight basis for heavy light-duty trucks, for the purposes of determining equivalent test weight as prescribed in § 86.129-94, shall be adjusted loaded vehicle weight. The standard set forth in

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paragraph (a)(1)(iii) 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.

(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) [Reserved]. For guidance see § 86.096-9.

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any 1997 and later model year light-duty truck.

(d)-(f) [Reserved]

(g) Any model year 1997 and later light-duty truck that a manufacturer wishes to certify for sale shall meet the emission standards under both low- and high-altitude conditions as specified in § 86.082-2, except as provided in paragraphs (h) and (i) of this section. Vehicles shall meet emission standards under both low- and high-altitude conditions without manual adjustments or modifications. Any emission control device used to meet emission standards under high-altitude conditions shall initially actuate (automatically) no higher than 4,000 feet above sea level.

(h) The manufacturer may exempt 1997 and later model year light-duty trucks from compliance at high altitude with the emission standards set forth in paragraphs (a) and (b) of this section, if the vehicles are not intended for sale at high altitude and if the requirements of paragraphs (h) (1) and (2) of this section are met.

(1) A vehicle configuration shall only be considered eligible for exemption under paragraph (h) of this section if the requirements of any of paragraphs (h)(1) (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 (h)(1)(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 (h)(1)(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 (copies may be obtained from SAE, 400 Commonwealth Dr., Warrendale, PA 15096), 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 (h)(1)(ii) of this section to any manufacturer that has exempted vehicle configurations as set forth in paragraph (h)(1)(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 (h)(1)(iii)(A) of this section.

(iv) In lieu of performing the test procedure of paragraph (h)(1)(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 (h)(1)(iii) of this section.

(2) A vehicle shall only be considered eligible for exemption under this paragraph if at least one configuration of its model type (and transmission configuration in the case of vehicles equipped with manual transmissions, excluding differences due to the presence of overdrive) is certified to meet emission standards under high-altitude conditions as specified in paragraphs (a) through (g) of this section. The Certificate of Conformity (the Certificate) covering any exempted configuration(s) will also apply to the corresponding non-exempt configura-

tion(s) required under this subparagraph. As a condition to the exemption, any suspension, revocation, voiding, or withdrawal of the Certificate as it applies to a non-exempt configuration for any reason will result in a suspension of the Certificate as it applies to the corresponding exempted configuration(s) of that model type, unless there is at least one other corresponding non-exempt configuration of the same model type still covered by the Certificate. The suspension of the Certificate as it applies to the exempted configuration(s) will be terminated when any one of the following occurs:

(i) Another corresponding non-exempt configuration(s) receive(s) coverage under the Certificate; or

(ii) Suspension of the Certificate as it applies to the corresponding non-exempt configuration(s) is terminated; or

(iii) The Agency's action(s), with respect to suspension, revocation, voiding or withdrawal of the Certificate as it applies to the corresponding non-exempt configuration(s), is reversed.

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

(i)(1) The manufacturers may exempt 1997 and later model year light-duty trucks from compliance at low altitude with the emission standards set forth in paragraphs (a) and (b) of this section if the vehicles:

(i) Are not intended for sale at low altitude; and

(ii) Are equipped with a unique, high-altitude axle ratio (rear-wheel drive vehicles) or a unique, high-altitude drivetrain (front-wheel drive vehicles) with a higher N/V ratio than other configurations of that model type which are certified in compliance with the emission standards of paragraphs (a) and (b) of this section under low-altitude conditions.

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

(j) Any light-duty truck that a manufacturer wishes to certify for sale

under the provisions of paragraphs (h) or (i) of this section is subject to the provisions of subpart Q of this part.

(k)(1) *Cold Temperature Carbon Monoxide (CO) Standards—Light light-duty trucks.* Exhaust emissions from 1997 and later model year light light-duty trucks with a loaded vehicle weight of 3,750 lbs or less shall not exceed the cold temperature CO standard of 10.0 grams per mile and light light-duty trucks with a loaded vehicle weight of greater than 3,750 lbs shall not exceed a cold temperature CO standard of 12.5 grams per mile, both for an intermediate useful life of 50,000 miles and as measured and calculated under the provisions set forth in subpart C of this part. This standard applies under both low and high altitude conditions.

(2) *Heavy light-duty trucks.* Exhaust emissions from 1997 and later model year heavy light-duty trucks shall not exceed the cold temperature CO standard of 12.5 grams per mile for an intermediate useful life of 50,000 miles, as measured and calculated under the provisions set forth in subpart C of this part. This standard applies under both low and high altitude conditions.

[56 FR 25757, June 5, 1991, as amended at 57 FR 31916, July 17, 1992; 58 FR 16025, Mar. 24, 1993; 58 FR 58421, Nov. 1, 1993; 59 FR 48500, Sept. 21, 1994; 60 FR 34335, June 30, 1995]

#### § 86.098-2 Definitions.

The definitions of § 86.096-2 continue to apply to 1996 and later model year vehicles. The definitions listed in this section apply beginning with the 1998 model year.

*Dispensed fuel temperature* means the temperature (deg.F or deg.C may be used) of the fuel being dispensed into the tank of the test vehicle during a refueling test.

*Evaporative/refueling emission control system* means a unique combination within an evaporative/refueling family of canister adsorptive material, purge system configuration, purge strategy, and other parameters determined by the Administrator to affect evaporative and refueling emission control system durability or deterioration factors.

*Evaporative/refueling emission family* means the basic classification unit of a manufacturers' product line used for

the purpose of evaporative and refueling emissions test fleet selection and determined in accordance with § 86.098-24.

*Fixed liquid level gauge* means a type of liquid level gauge used on liquefied petroleum gas-fueled vehicles which uses a relatively small positive shutoff valve and is designed to indicate when the liquid level in the fuel tank being filled reaches the proper fill level. The venting of fuel vapor and/or liquid fuel to the atmosphere during the refueling event is generally associated with the use of the fixed liquid level gauge.

*Integrated refueling emission control system* means a system where vapors resulting from refueling are stored in a common vapor storage unit(s) with other evaporative emissions of the vehicle and are purged through a common purge system.

*Non-integrated refueling emission control system* means a system where fuel vapors from refueling are stored in a vapor storage unit assigned solely to the function of storing refueling vapors.

*Refueling emissions* means evaporative emissions that emanate from a motor vehicle fuel tank(s) during a refueling operation.

*Refueling emissions canister(s)* means any vapor storage unit(s) that is exposed to the vapors generated during refueling.

*Resting losses* means evaporative emissions that may occur continuously, that are not diurnal emissions, hot soak emissions, refueling emissions, running losses, or spitback emissions.

*Useful life* means:

(1) For light-duty vehicles, and for light light-duty trucks not subject to the Tier 0 standards of § 86.094-9(a), intermediate useful life and/or full useful life. Intermediate useful life is a period of use of 5 years or 50,000 miles, whichever occurs first. Full useful life is a period of use of 10 years or 100,000 miles, whichever occurs first, except as otherwise noted in § 86.094-9. The useful life of evaporative and/or refueling emission control systems on the portion of these vehicles subject to the evaporative emission test requirements of § 86.130-96, and/or the refueling emission test requirements of § 86.151-98, is