

State of California
AIR RESOURCES BOARD

**CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES
FOR 1978-2000 ~~AND SUBSEQUENT~~ MODEL MOTOR VEHICLES**

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Note: The only amendments to this document pertain to making it inapplicable to 2001 and subsequent model vehicles. The amendments are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions from the version of the test procedures as amended on May 22, 1997. Only the portions of the document for which amendments are proposed are shown.

CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES FOR 1978-~~2000~~ AND SUBSEQUENT MODEL MOTOR VEHICLES

The provisions of Title 40, Code of Federal Regulations (CFR), Part 86, Subparts A and B, as they pertain to evaporative emission standards and test procedures and as they were amended or adopted as of July 1, 1989, are hereby adopted as the California Evaporative Emission Standards and Test Procedures for 1978-~~2000~~ and ~~Subsequent~~ Model Motor Vehicles, with the following exceptions and additions:

- 1. Standards and Applicability.** These standards and test procedures are applicable to all new 1978-~~2000~~ and ~~subsequent~~ model gasoline-fueled and 1993-~~2000~~ and ~~subsequent~~ model alcohol-fueled passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, hybrid electric vehicles, and motorcycles.

These standards and test procedures are applicable to all new 1983-~~2000~~ and ~~subsequent~~ model liquefied petroleum gas (LPG)-fueled passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, hybrid electric vehicles, and motorcycles. In those instances that the testing conditions or parameters are not practical or feasible for such vehicles, the manufacturer shall provide a test plan that provides equal or greater confidence in comparison to these test procedures. The test plan must be approved in advance by the Executive Officer.

A manufacturer may implement, for 1995 model motor vehicles, test procedure requirements mandated for 1996-~~2000~~ and ~~subsequent~~ model motor vehicles upon approval of the Executive Officer. The Executive Officer shall approve such a request if the manufacturer provides a demonstration that the effectiveness of the evaporative control system is not diminished.

Carry-over of 1995 model year data will be allowed if the Executive Officer determines that the carry-over data will adequately represent the performance of the vehicle to be certified. Applications for carry-over must be accompanied by an engineering analysis demonstrating that the durability and emissions of the vehicle for which certification is being sought will be adequately represented by a certified platform/powertrain/fuel tank combination application.

These standards and test procedures do not apply to motor vehicles which are exempt from exhaust emission certification, petroleum-fueled diesel vehicles, compressed natural gas-fueled vehicles, or hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions.

a. Emission Standards for Vehicles Except Motorcycles

The evaporative emission standards for vehicles subject to these procedures, except motorcycles, are as follows:

i. Vehicles Tested Based on the Sealed Housing for Evaporative Determination

For vehicles identified below, tested in accordance with the test procedure based on the Sealed Housing for Evaporative Determination (SHED) as set forth in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989, the evaporative emission standards are:

| <i>Vehicle Type</i> | <i>Model Year</i> | <i>Hydrocarbons⁽¹⁾ Diurnal + Hot Soak (grams/test) 50K miles</i> |
|----------------------|--------------------------|---|
| Passenger cars | 1978 and 1979 | 6.0 |
| Light-duty trucks | | 6.0 |
| Medium-duty vehicles | | 6.0 |
| Heavy-duty vehicles | | 6.0 |
| Passenger cars | 1980-1994 ⁽²⁾ | 2.0 |
| Light-duty trucks | | 2.0 |
| Medium-duty vehicles | | 2.0 |
| Heavy-duty vehicles | | 2.0 |

(1) The applicable evaporative emission standards for alcohol-fueled vehicles are expressed in terms of Organic Material Hydrocarbon Equivalent (OMHCE).

(2) Other than hybrid electric vehicles.

ii. Vehicles Tested Based on the Three-day Diurnal Sequence

For the vehicles identified below, tested in accordance with the test procedure which includes the running loss test, the hot soak test, and the three-day diurnal test (hereinafter "three-day diurnal sequence"), the evaporative emission standards are:

| <i>Vehicle Type</i> | <i>Model Year</i> | <i>Hydrocarbons⁽¹⁾</i> | |
|--|---|--|--|
| | | <i>Three-Day Diurnal + Hot Soak (grams/test) Useful Life⁽²⁾</i> | <i>Running Loss (grams/mile) Useful Life⁽²⁾</i> |
| Passenger cars | 1995 through 2000 and subsequent ⁽³⁾ | 2.0 | 0.05 |
| Light-duty trucks | | 2.0 | 0.05 |
| Medium-duty vehicles (6,001-8,500 lbs. GVWR) | | | |
| with fuel tanks < 30 gallons | | 2.0 | 0.05 |
| with fuel tanks ≥ 30 gallons | | 2.5 | 0.05 |
| (8,501-14,000 lbs. GVWR) ⁽⁴⁾ | | 3.0 | 0.05 |
| Heavy-duty vehicles (over 14,000 lbs. GVWR) | | 2.0 | 0.05 |
| Hybrid electric passenger cars | 1993 through 2000 and subsequent ⁽⁵⁾ | 2.0 | 0.05 |
| Hybrid electric light-duty trucks | | 2.0 | 0.05 |
| Hybrid electric medium-duty vehicles | | 2.0 | 0.05 |

- (1) The applicable evaporative emission standards for alcohol-fueled vehicles are expressed as OMHCE.
- (2) For purposes of this paragraph, "useful life" shall have the same meaning as provided in section 2112, Title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1, Title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.
- (3) The running loss and useful life three-day diurnal plus hot soak evaporative emission standards (hereinafter "running loss and useful life standards") shall be phased in beginning with the 1995 model year. Each manufacturer, except ultra-small volume and small volume manufacturers, shall certify the specified percent (a) of passenger cars and (b) of light-duty trucks, medium-duty vehicles and heavy-duty vehicles to the running loss and useful life standards according to the following schedule:

| <u>Model Year</u> | <u>Minimum Percentage of Vehicles Certified to Running Loss and Year Useful Life Standards*</u> |
|-----------------------|---|
| 1995 | 10 percent |
| 1996 | 30 percent |
| 1997 | 50 percent |

* The minimum percentage of motor vehicles in each vehicle type required to be certified to the running loss and useful life standards shall be based on the manufacturer's projected California model-year sales (a) of passenger cars and (b) of light-duty trucks, medium-duty vehicles and heavy-duty vehicles. Optionally, the percentage of motor vehicles can also be based on the manufacturer's projected California model-year sales (a) of passenger cars and light-duty trucks and (b) of medium-duty vehicles and heavy-duty vehicles.

Beginning with the 1998 model year, all motor vehicles subject to the running loss and useful life standards, except those produced by ultra-small volume manufacturers, shall be certified to the specified standards. In the 1999 and 2000 ~~subsequent~~ model years, all motor vehicles subject to the running loss and useful life standards, including those produced by ultra-small volume manufacturers, shall be certified to the specified standards.

All 1995 through 1998 model-year motor vehicles which are not subject to running loss and useful life standards pursuant to the phase-in schedule shall comply with the 50,000-mile standards in effect for 1980 through 1994 model-year vehicles.

- (4) For the 1995 model year only, the evaporative emission standards for complete vehicles in this weight range shall be 2.0 grams/test and compliance with the evaporative emission standards shall be based on the SHED conducted in accordance with the procedures set forth in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989. For the 1995 through 2000 ~~and subsequent~~ model years, the evaporative emission standards for incomplete vehicles in this weight range shall be 2.0 grams/test and compliance with the evaporative emission standards shall be based on the test procedures specified in paragraph 4.g.
- (5) The running loss and useful life standards for all hybrid electric vehicles shall be effective in the 1993 through 2000 ~~and subsequent~~ model years.

iii. Vehicles Tested Based on the Two-day Diurnal Sequence

For vehicles identified below, tested in accordance with the test procedure sequence which includes the hot soak test and the two-day diurnal test (hereinafter "two-day diurnal sequence"), the evaporative emission standards are:

| <i>Vehicle Type</i> | <i>Model Year</i> | <i>Hydrocarbons⁽¹⁾ Two-Day Diurnal + Hot Soak (grams/test) Useful Life⁽²⁾</i> |
|---|---|---|
| Passenger cars | 1996 <u>through</u> 2000 <u>and</u> subsequent ⁽³⁾ | 2.5 |
| Light-duty trucks | | 2.5 |
| Medium-duty vehicles (6,001-8,500 lbs. GVWR) with fuel tanks < 30 gallons with fuel tanks ≥ 30 gallons (8,501-14,000 lbs. GVWR) | | 2.5 |
| | | 3.0 |
| Heavy-duty vehicles (over 14,000 lbs. GVWR) | | 3.5 |
| | 4.5 | |
| Hybrid electric passenger cars | 1996 <u>through</u> 2000 <u>and</u> subsequent ⁽³⁾ | 2.5 |
| Hybrid electric light-duty trucks | | 2.5 |
| Hybrid electric medium-duty vehicles | | 2.5 |

- (1) The applicable evaporative emission standards for alcohol vehicles are expressed as OMHCE.
- (2) For purposes of this paragraph, "useful life" shall have the same meaning as provided in section 2112, Title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1, Title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.
- (3) The two-day diurnal plus hot soak evaporative emission standards (hereinafter "supplemental standards") shall be phased in beginning with the 1996 model year. Those vehicles certified under the running loss and useful life standards for the 1996 through 2000 and subsequent model years must also be certified under the supplemental standards.

b. Emission Standards for Motorcycles

Evaporative emission standards for gasoline-fueled motorcycles are:

| <i>Motorcycle Class</i> | <i>Model Year</i> | <i>Hydrocarbons (grams per test)</i> |
|---|--|--|
| Class I and II (50-279 cc) | 1983 and 1984 | 6.0 |
| | 1985 <u>through 2000</u> and subsequent | 2.0 |
| Class III (280 cc and larger) | 1984 and 1985 | 6.0 |
| | 1986 <u>through 2000</u> and subsequent | 2.0 |
| Class III (280 cc and larger) (Optional Standard for Small- Volume Motorcycle Manufacturers) | 1986-1988 | 6.0 |

[Remainder of Test Procedures -- No Changes]