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§ 1051.240 How do I demonstrate that my engine family complies with exhaust emission standards?

(a) For certification, your engine family is considered to be in compliance with the numerical exhaust emission standards in subpart B of this part if all emission-data vehicles representing that family have test results showing emission levels at or below the standards.

(b) Your engine family does not comply if any emission-data vehicle representing that family has test results showing emission levels above the standards for any pollutant.

(c) To compare emission levels from the emission-data vehicle with the emission standards, apply deterioration factors (to three significant figures) to the measured emission levels. The deterioration factor is a number that shows the relationship between exhaust emissions at the end of useful life and at the low-hour test point. Section 1051.520 specifies how to test your vehicle to develop deterioration factors that estimate the change in emissions over your vehicle's full useful life. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply the deterioration factors as follows:

(1) For vehicles that use aftertreatment technology, such as catalytic converters, the exhaust deterioration factor is the ratio of exhaust emissions at the end of useful life to exhaust emissions at the low-hour test point. Adjust the official emission results for each tested vehicle at the selected test point by multiplying the measured emissions by the deterioration factor. If the factor is less than one, use one.

(2) For vehicles that do not use aftertreatment technology, the exhaust deterioration factor is the difference between exhaust emissions at the end of useful life and exhaust emissions at the low-hour test point. Adjust the official emission results for each tested vehicle at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero.

(d) After adjusting the emission levels for deterioration, round them to the same number of decimal places as the

emission standard. Compare the rounded emission levels to the emission standard for each test vehicle.

§ 1051.245 How do I demonstrate that my engine family complies with evaporative emission standards?

(a) For certification, your engine family is considered in compliance with the evaporative emission standards in subpart B of this part if you do either of the following:

(1) You have test results showing permeation emission levels from the fuel tanks and fuel lines in the family are at or below the standards in §1051.110 throughout the useful life.

(2) You comply with the design specifications in paragraph (e) of this section.

(b) Your engine family does not comply if any fuel tank or fuel line representing that family has test results showing emission levels above the standards.

(c) To compare emission levels with the emission standards, apply deterioration factors (to three significant figures) to the measured emission levels. The deterioration factor is a number that shows the relationship between emissions at the end of useful life and at the low-hour test point. For permeation emissions, the deterioration factor is the difference between evaporative emissions at the end of useful life and evaporative emissions at the low-hour test point. Adjust the official emission results for each tested vehicle at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero.

(1) Section 1051.515 specifies how to test your fuel tanks to develop deterioration factors that estimate the change in emissions over your vehicle's full useful life. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply the deterioration factors as follows:

(i) Calculate the deterioration factor from emission tests performed before and after the durability tests as described in §1051.515(c) and (d) and using good engineering judgment. The durability tests described in §1051.515(d) represent the minimum requirements for determining a deterioration factor. You may not use a deterioration factor

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that is less than the difference between evaporative emissions before and after the durability tests as described in § 1051.515(c) and (d).

(ii) Do not apply the deterioration factor to test results for tanks that have already undergone these durability tests.

(2) Determine the deterioration factor for fuel lines using good engineering judgment.

(d) After adjusting the emission levels for deterioration, round them to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each test vehicle.

(e) You may demonstrate for certification that your engine family complies with the evaporative emission standards by demonstrating that you use the following control technologies:

(1) For certification to the standards specified in § 1051.110(a) with the control technologies shown in the following table:

TABLE 1 OF § 1051.245—DESIGN-CERTIFICATION TECHNOLOGIES FOR CONTROLLING TANK PERMEATION

If the tank permeability control technology is . . .	Then you may design-certify with a tank emission level of . . .
(i) A metal fuel tank with no non-metal gaskets or with gaskets made from a low-permeability material ¹ .	1.5 g/m ² /day.
(ii) A metal fuel tank with non-metal gaskets with an exposed surface area of 1000 mm ² or less.	1.5 g/m ² /day.

¹ Permeability of 10 g/m²/day or less according to ASTM D 814-95 (incorporated by reference in § 1051.810).

(2) For certification to the standards specified in § 1051.110(b) with the control technologies shown in the following table:

TABLE 2 OF § 1051.245.—DESIGN-CERTIFICATION TECHNOLOGIES FOR CONTROLLING FUEL-LINE PERMEATION

If the fuel-line permeability control technology is . . .	Then you may design-certify with a fuel line permeation emission level of . . .
(i) Hose meeting Category 1 permeation specifications in SAE J2260 (incorporated by reference in § 1051.810).	15 g/m ² /day.

TABLE 2 OF § 1051.245.—DESIGN-CERTIFICATION TECHNOLOGIES FOR CONTROLLING FUEL-LINE PERMEATION—Continued

If the fuel-line permeability control technology is . . .	Then you may design-certify with a fuel line permeation emission level of . . .
(ii) Hose meeting the R11-A or R12 permeation specifications in SAE J30 (incorporated by reference in § 1051.810).	15 g/m ² /day.

(3) We may establish additional design certification options where we find that new test data demonstrate that the use of other technology designs will ensure compliance with the applicable emission standards.

[67 FR 68347, Nov. 8, 2002, as amended at 69 FR 2442, Jan. 15, 2004]

§ 1051.250 What records must I keep and make available to EPA?

(a) Organize and maintain the following records to keep them readily available; we may review these records at any time:

(1) A copy of all applications and any summary information you sent us.

(2) Any of the information we specify in § 1051.205 that you did not include in your application.

(3) A detailed history of each emission-data vehicle. In each history, describe all of the following:

(i) The emission-data vehicle's construction, including its origin and buildup, steps you took to ensure that it represents production vehicles, any components you built specially for it, and all emission-related components.

(ii) How you accumulated vehicle or engine operating hours, including the dates and the number of hours accumulated.

(iii) All maintenance (including modifications, parts changes, and other service) and the dates and reasons for the maintenance.

(iv) All your emission tests, including documentation on routine and standard tests, as specified in part 1065 of this chapter or other applicable test procedures regulations, and the date and purpose of each test.

(v) All tests to diagnose engine or emission-control performance, giving the date and time of each and the reasons for the test.

(vi) Any other significant events.