

(ii) *Carbon monoxide*. Regulated vehicles shall meet at least one of the following two sets of standards:

(A) *Individual US06 and SC03 Air Conditioning compliance*. Comply with both the following standards:

(1) 4.4 grams per mile on the A/C test, not applicable to diesel fueled vehicles; and

(2) 13.2 grams per mile on the US06 test; or

(B) *Composite Carbon Monoxide Standard*: 5.0 grams per mile.

(2) Supplemental exhaust emissions from gasoline-fueled light-duty truck 4's shall not exceed the following standards at full useful life:

(i) Nonmethane hydrocarbon and oxides of nitrogen composite: 2.09 grams per mile.

(ii) *Carbon monoxide*. Regulated vehicles shall meet at least one of the following two sets of standards:

(A) *Individual US06 and SC03 Air Conditioning compliance*. Comply with both the following standards:

(1) 6.4 grams per mile on the A/C test, not applicable to diesel fueled vehicles; and

(2) 19.3 grams per mile on the US06 test; or

(B) *Composite Carbon Monoxide Standard*: 7.3 grams per mile.

(c) *Cold temperature emission standards*. Exhaust emissions from gasoline-fueled light-duty truck 4's shall not exceed the cold temperature CO standard of 12.5 grams per mile for an intermediate useful life of 50,000 miles.

(d) *Evaporative emissions*. Evaporative emissions from gasoline-fueled, natural gas-fueled, liquefied petroleum gas-fueled, and methanol-fueled light-duty truck 4's shall not exceed the following standards. The standards apply equally to certification and in-use vehicles. The spitback standard also applies to newly assembled vehicles.

(1) Hydrocarbons for gasoline and methanol light-duty trucks with a nominal fuel tank capacity of 30 gallons or more shall not exceed the following standards:

(i) For the full three-diurnal test sequence, diurnal plus hot soak measurements: 2.5 grams per test.

(ii) *Gasoline and methanol fuel only*. For the supplemental two-diurnal test

sequence, diurnal plus hot soak measurements: 3.0 grams per test.

(iii) *Gasoline and methanol fuel only*. Running loss test: 0.05 grams per mile.

(iv) *Gasoline and methanol fuel only*. Fuel dispensing spitback test: 1.0 grams per test.

(2) Hydrocarbons for gasoline and methanol light-duty trucks with a nominal fuel tank capacity of less than 30 gallons shall not exceed the following standards:

(i) For the full three-diurnal test sequence, diurnal plus hot soak measurements: 2.0 grams per test.

(ii) *Gasoline and methanol fuel only*. For the supplemental two-diurnal test sequence, diurnal plus hot soak measurements: 2.5 grams per test.

(iii) *Gasoline and methanol fuel only*. Running loss test: 0.05 grams per mile.

(iv) *Gasoline and methanol fuel only*. Fuel dispensing spitback test: 1.0 grams per test.

(e) [Reserved]

(f) *Certification short test*. Certification short test emissions from gasoline-fueled Otto-cycle light-duty vehicles and light-duty trucks shall not exceed the following standards:

(1) Hydrocarbons: 100 ppm as hexane.

(2) Carbon monoxide: 0.5%.

(g) *Idle exhaust emission standards, light-duty trucks*. Exhaust emissions of carbon monoxide from gasoline, methanol, natural gas- and liquefied petroleum gas-fueled light-duty trucks shall not exceed 0.50 percent of exhaust gas flow at curb idle for a useful life of 11 years or 120,000 miles, whichever occurs first.

[64 FR 23925, May 4, 1999, as amended at 65 FR 6863, Feb. 10, 2000]

§§ 86.1816-86.1819 [Reserved]

§ 86.1820-01 Durability group determination.

This section applies to the grouping of vehicles into durability groups. Manufacturers shall divide their product line into durability groups based on the following criteria:

(a) The vehicles covered by a certification application shall be divided into groups of vehicles which are expected to have similar emission deterioration and emission component durability characteristics throughout their useful

life. Manufacturers shall use good engineering judgment in dividing their vehicles into durability groups. Such groups of vehicles are defined as durability groups.

(b) To be included in the same durability group, vehicles must be identical in all the respects listed in paragraphs (b) (1) through (7) of this section:

(1) Combustion cycle (e.g., two stroke, four stroke, Otto cycle, diesel cycle).

(2) Engine type (e.g., piston, rotary, turbine, air cooled versus water cooled).

(3) Fuel used (e.g., gasoline, diesel, methanol, ethanol, CNG, LPG, flexible fuels).

(4) Basic fuel metering system (e.g., throttle body injection, port injection (including central port injection), carburetor, CNG mixer unit).

(5) Catalyst construction (for example, beads or monolith).

(6) Precious metal composition of the catalyst by the type of principal active material(s) used (e.g., platinum based oxidation catalyst, palladium based oxidation catalyst, platinum and rhodium three-way catalyst, palladium and rhodium three way catalyst, platinum and palladium and rhodium three way catalyst).

(7) The manufacturer must choose one of the following two criteria:

(i) Grouping statistic:

(A) Vehicles are grouped based upon the value of the grouping statistic determined using the following equation:

$$GS = [(Cat\ Vol)/(Disp)] \times Loading\ Rate$$

Where:

GS = Grouping Statistic used to evaluate the range of precious metal loading rates and relative sizing of the catalysts compared to the engine displacement that are allowable within a durability group. The grouping statistic shall be rounded to a tenth of a gram/liter, in accordance with the Rounding-Off Method specified in ASTM E29-93a, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (incorporated by reference, see § 86.1).

Cat Vol = Total volume of the catalyst(s) in liters.

Disp = Displacement of the engine in liters.

Loading rate = The mass of total precious metal(s) in the catalyst (or the total mass of all precious metal(s) of all the catalysts if the vehicle is equipped with multiple

catalysts) in grams divided by the total volume of the catalyst(s) in liters.

(B) Engine-emission control system combinations which have a grouping statistic which is either less than 25 percent of the largest grouping statistic value, or less than 0.2 g/liter (whichever allows the greater coverage of the durability group) shall be grouped into the same durability group.

(ii) The manufacturer may elect to use another procedure which results in at least as many durability groups as required using criteria in paragraph (b)(7)(i) of this section providing that only vehicles with similar emission deterioration or durability are combined into a single durability group.

(c) Where vehicles are of a type which cannot be divided into durability groups based on the criteria listed above (such as non-catalyst control system approaches), the Administrator will establish durability groups for those vehicles based upon the features most related to their exhaust emission deterioration characteristics.

(d) Manufacturers may further divide groups determined under paragraph (b) of this section provided the Administrator is notified of any such changes prior to or concurrently with the submission of the application for certification (preferably at an annual preview meeting scheduled before the manufacturer begins certification activities for the model year).

(e) Manufacturers may request the Administrator's approval to combine vehicles into a single durability group which would normally not be eligible to be in a single durability group. The petition should provide:

(1) Substantial evidence that all the vehicles in the larger grouping will have the same degree of emission deterioration;

(2) Evidence of equivalent component durability over the vehicle's useful life; and

(3) Evidence that the groups will result in sufficient In-Use Verification Program data, appropriate tracking in use, and clear liability for the Agency's recall program.