Environmental Protection Agency

§ 86.1825–08 Durability demonstration procedures for refueling emissions.

This section applies to 2008 and later model year light-duty vehicles, light-duty trucks, and heavy-duty vehicles which are certified under light-duty rules as allowed under the provisions of §86.1801–01(c)(1) which are subject to refueling loss emission compliance. Optionally, a manufacturer may elect to use this section for earlier model year light-duty vehicles, light-duty trucks, and heavy-duty vehicles which are certified under light-duty rules as allowed under the provisions of §86.1801–01(c)(1) which are subject to refueling loss emission compliance. Refer to the provisions of §§86.1811, 86.1812, 86.1813, 86.1814, and 86.1815 to determine applicability of the refueling standards to different classes of vehicles for various model years. Diesel fuel vehicles may qualify for an exemption to the requirements of this section under the provisions of §86.1810.

(a) Durability program objective. The durability program must predict an expected in-use emission deterioration rate and emission level that effectively represents a significant majority of the distribution of emission levels and deterioration in actual use over the full useful life of candidate in-use vehicles of each vehicle design which uses the durability program.

(b) Required durability demonstration. Manufacturers must conduct a durability demonstration which satisfies the provisions of either paragraph (c), (d), or (e) of this section.

(c) Whole vehicle refueling durability demonstration. The following procedures must be used when conducting a whole vehicle durability demonstration:

(1) Mileage accumulation must be conducted using the SRC or a road cycle approved under the provisions of §86.1823(e)(1).

(2) Mileage accumulation must be conducted for either:

(i) The applicable full useful life mileage period specified in §86.1805, or

(ii) At least 75 percent of the full useful life mileage. In which case, the manufacturer must calculate a DF calculated according to the procedures of paragraph (f)(1)(ii) of this section, except that the DF must be based upon a
line projected to the full-useful life mileage using the upper 80 percent statistical confidence limit calculated from the emission data.

(3) The manufacturer must conduct at least one refueling emission test at each of the five different mileage points selected using good engineering judgement. The required testing must include testing at 5,000 miles and at the highest mileage point run during mileage accumulation (e.g., the full useful life mileage). Additional testing may be conducted by the manufacturer using good engineering judgement.

(d) *Bench aging refueling durability procedures.* Manufacturers may use bench procedures designed, using good engineering judgement, to evaluate the emission deterioration of evaporative/refueling control systems. Manufacturers may base the bench procedure on an evaluation the following potential causes of evaporative/refueling emission deterioration:

1. Cycling of canister loading due to diurnal and refueling events;
2. Use of various commercially available fuels, including the Tier 2 requirement to include alcohol fuel;
3. Vibration of components;
4. Deterioration of hoses, etc. due to environmental conditions; and
5. Deterioration of fuel cap due to wear.

(e) *Combined whole-vehicle and bench-aging programs.* Manufacturers may combine the results of whole vehicle aging and bench aging procedures using good engineering judgement.

(f) [Reserved]

(g) *Calculation of a deterioration factor.* The manufacturer must calculate a deterioration factor which is applied to the evaporative emission results of the emission data vehicles. The deterioration factor must be based on a linear regression, or an other regression technique approved in advance by the Administrator. The DF will be calculated to be the difference between the full life mileage evaporative level minus the stabilized mileage (e.g., 4000-mile) evaporative level from the regression analysis. The full useful life regressed emission value, the stabilized mileage regressed emission value, and the DF result must be rounded to the same precision and using the same proce-

Section 86.1826–01 Assigned deterioration factors for small-volume manufacturers and small-volume test groups.

(a) *Applicability.* This program is an option available for small-volume manufacturers and small-volume test groups as described in §86.1838.