

§ 1060.505

40 CFR Ch. I (7–1–13 Edition)

1065.710. Use the grade of gasoline specified for general testing. For testing specified in this part that requires a blend of gasoline and ethanol, blend this grade of gasoline with fuel-grade ethanol meeting the specifications of ASTM D4806 (incorporated by reference in § 1060.810). You do not need to measure the ethanol concentration of such blended fuels and may instead calculate the blended composition by assuming that the ethanol is pure and mixes perfectly with the base fuel. For example, if you mix 10.0 liters of fuel-grade ethanol with 90.0 liters of gasoline, you may assume the resulting mixture is 10.0 percent ethanol. You may use more or less pure ethanol if you can demonstrate that it will not affect your ability to demonstrate compliance with the applicable emission standards. Note that unless we specify otherwise, any references to gasoline-ethanol mixtures containing a

specified ethanol concentration means mixtures meeting the provisions of this paragraph (c).

(d) Accuracy and precision of all temperature measurements must be ± 1.0 °C or better. If you use multiple sensors to measure differences in temperature, calibrate the sensors so they will be within 0.5 °C of each other when they are in thermal equilibrium at a point within the range of test temperatures (use the starting temperature in Table 1 to § 1060.525 unless this is not feasible).

(e) Accuracy and precision of mass balances must be sufficient to ensure accuracy and precision of two percent or better for emission measurements for products at the maximum level allowed by the standard. The readability of the display may not be coarser than half of the required accuracy and precision. Examples are shown in the following table for a digital readout:

	Example #1	Example #2	Example #3
Applicable standard	1.5 g/m ² /day	1.5 g/m ² /day	15 g/m ² /day.
Internal surface area	1.15 m ²	0.47 m ²	0.015 m ² .
Length of test	14.0 days	14.0 days	14.1 days.
Maximum allowable mass change	24.15 g	9.87 g	3.173 g.
Required accuracy and precision	± 0.483 g or better	± 0.197 g or better	± 0.0635 g or better.
Required readability	0.1 g or better	0.1 g or better	0.01 g or better.

[73 FR 59298, Oct. 8, 2008, as amended at 74 FR 8427, Feb. 24, 2009]

§ 1060.505 Other procedures.

(a) *Your testing.* The procedures in this part apply for all testing you do to show compliance with emission standards, with certain exceptions listed in this section.

(b) *Our testing.* These procedures generally apply for testing that we do to determine if your equipment complies with applicable emission standards. We may perform other testing as allowed by the Clean Air Act.

(c) *Exceptions.* We may allow or require you to use procedures other than those specified in this part in the following cases:

(1) You may request to use special procedures if your equipment cannot be tested using the specified procedures. We will approve your request if we determine that it would produce emission measurements that represent in-use operation and we determine that it can

be used to show compliance with the requirements of the standard-setting part.

(2) You may ask to use emission data collected using other procedures, such as those of the California Air Resources Board or the International Organization for Standardization. We will approve this only if you show us that using these other procedures does not affect your ability to show compliance with the applicable emission standards. This generally requires emission levels to be far enough below the applicable emission standards so any test differences do not affect your ability to state unconditionally that your equipment will meet all applicable emission standards when tested using the specified test procedures.

(3) You may request to use alternate procedures that are equivalent to allowed procedures or are more accurate

or more precise than allowed procedures. See 40 CFR 1065.12 for a description of the information that is generally required to show that an alternate test procedure is equivalent.

(4) The test procedures are specified for gasoline-fueled equipment. If your equipment will use another volatile liquid fuel instead of gasoline, use a test fuel that is representative of the fuel that will be used with the equipment in use. You may ask us to approve other changes to the test procedures to reflect the effects of using a fuel other than gasoline.

(d) *Approval.* If we require you to request approval to use other procedures under paragraph (c) of this section, you may not use them until we approve your request.

§ 1060.510 How do I test EPA Low-Emission Fuel Lines for permeation emissions?

For EPA Low-Emission Fuel Lines, measure emissions according to SAE J2260, which is incorporated by reference in § 1060.810.

[74 FR 8427, Feb. 24, 2009]

§ 1060.515 How do I test EPA Nonroad Fuel Lines and EPA Cold-Weather Fuel Lines for permeation emissions?

Measure emission as follows for EPA Nonroad Fuel Lines and EPA Cold-Weather Fuel Lines:

(a) Prior to permeation testing, use good engineering judgment to precondition the fuel line by filling it with the fuel specified in this paragraph (a), sealing the openings, and soaking it for at least four weeks at 43 ± 5 °C or eight weeks at 23 ± 5 °C.

(1) For EPA Nonroad Fuel Lines, use Fuel CE10, which is Fuel C as specified in ASTM D471 (incorporated by reference in § 1060.810) blended with ethanol such that the blended fuel has 10.0 \pm 1.0 percent ethanol by volume.

(2) For EPA Cold-Weather Fuel Lines, use gasoline blended with ethanol such that the blended fuel has 10.0 \pm 1.0 percent ethanol by volume.

(b) Drain the fuel line and refill it immediately with the fuel specified in paragraph (a) of this section. Be careful not to spill any fuel.

(c) Measure fuel line permeation emissions using the equipment and procedures for weight-loss testing specified in SAE J30 or SAE J1527 (incorporated by reference in § 1060.810). Start the measurement procedure within 8 hours after draining and refilling the fuel line. Perform the emission test over a sampling period of 14 days. Determine your final emission result based on the highest measured value over the 14-day period.

(d) Use good engineering judgment to test fuel line segments with short length or narrow inner diameter. For example, size the fuel reservoir appropriately for the tested fuel line and take steps to eliminate air bubbles from narrow-diameter fuel lines.

[73 FR 59298, Oct. 8, 2008, as amended at 74 FR 8427, Feb. 24, 2009; 75 FR 23027, Apr. 30, 2010]

§ 1060.520 How do I test fuel tanks for permeation emissions?

Measure permeation emissions by weighing a sealed fuel tank before and after a temperature-controlled soak.

(a) *Preconditioning durability testing.* Take the following steps before an emission test, in any order, if your emission control technology involves surface treatment or other post-processing treatments such as an epoxy coating:

(1) *Pressure cycling.* Perform a pressure test by sealing the tank and cycling it between +13.8 and -1.7 kPa (+2.0 and -0.5 psig) for 10,000 cycles at a rate of 60 seconds per cycle. The purpose of this test is to represent environmental wall stresses caused by pressure changes and other factors (such as vibration or thermal expansion). If your tank cannot be tested using the pressure cycles specified by this paragraph (a)(1), you may ask to use special test procedures under § 1060.505.

(2) *UV exposure.* Perform a sunlight-exposure test by exposing the tank to an ultraviolet light of at least 24 W/m² (0.40 W-hr/m²/min) on the tank surface for at least 450 hours. Alternatively, the fuel tank may be exposed to direct natural sunlight for an equivalent period of time as long as you ensure that the tank is exposed to at least 450 daylight hours.

(3) *Slosh testing.* Perform a slosh test by filling the tank to 40–50 percent of