

§ 1065.810

(b) Use good engineering judgment to measure other oxygenated compounds in the exhaust.

§ 1065.810 Calculations.

(a) *THCE emissions.* (1) Calculate THCE emissions as the sum of the mass of the nonoxygenated hydrocarbons in the exhaust and the carbon-equivalent mass of each measured oxygenated species in the exhaust.

(2) Calculate carbon-equivalent mass of each measured oxygenated species from the following equation:

$$\text{Carbon equivalent} = 13.8756 \times \text{MOC} / \text{MWPC}$$

Where:

MOC is the mass of the oxygenated compound in the exhaust, and MWPC is the molecular weight of compound per carbon atom of compound.

(b) *NMHCE emissions.* Calculate NMHCE emissions as either:

(1) The sum of the mass of the nonoxygenated nonmethane hydrocarbons in the exhaust and the carbon-equivalent mass of each measured oxygenated species in the exhaust.

(2) THCE minus the mass of methane in the exhaust.

(c) *Sample calculation.* (1) Assume the following emissions for a test: 40.00 grams of nonoxygenated hydrocarbons, 100.00 grams of ethanol, and 10.00 grams of acetaldehyde, and 1.00 gram of formaldehyde.

(2) The carbon-equivalent of the masses of oxygenated compounds are:

(i) $13.8756 \times 100.00 / (46.068/2) = 60.24$ grams of ethanol.

(ii) $13.8756 \times 10.00 / (44.052/2) = 6.30$ grams of acetaldehyde.

(iii) $13.8756 \times 1.00 / (30.026) = 0.46$ grams of formaldehyde.

(3) THCE = 40.00 + 60.24 + 6.30 + 0.46 = 107.00 grams per test.

Subpart J—Field Testing

§ 1065.901 Applicability.

(a) The test procedures in this subpart measure brake-specific emissions from engines while they remain installed in vehicles or equipment in the field.

(b) These test procedures apply to your engines as specified in the standard-setting part. For example, part 1048

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of this chapter specifies emission standard to be used for in-use tests conducted in accordance with the provisions of this part. Unless this subpart is specifically mentioned in the standard-setting part, compliance with the provisions of this subpart is not required.

§ 1065.905 General provisions.

(a) Unless the standard-setting part specifies deviations from the provisions of this subpart, testing conducted under this subpart must conform to all of the provisions of this subpart.

(b) Testing conducted under this subpart may include any normal in-use operation of the engine.

§ 1065.910 Measurement accuracy and precision.

(a) Measurement systems used for in-use testing must be accurate to within ± 5 percent compared to engine dynamometer testing conducted according to the test procedures of this part that are applicable for your engine. These systems must also have a precision of ± 5 percent or better. Determine accuracy and precision of an in-use system by simultaneously measuring emissions using the engine-dynamometer test procedures of this part and the in-use system. To have a statistically valid sample, measure emissions during at least 3 tests each for at least 3 different engines. You must conduct these verification tests using the test cycle specified in the standard-setting part, unless we approve a different test cycle.

(1) A system must meet the following conditions to be considered sufficiently accurate:

(i) The correlation coefficient (r) for a least-squares linear fit that includes the origin must be 0.95 or higher.

(ii) The average ratio (for all tests) of the emission rate from the in-use system divided by the emission rate from the dynamometer procedure must be 0.97 to 1.05.

(2) For a system to be considered sufficiently precise, the average coefficient of variance for all engines must be 5 percent or less for each pollutant.

NOTE: Increasing the length of the sampling period may be an effective way to improve precision.