

Environmental Protection Agency

§ 1065.750

meeting the specifications in 40 CFR 1090.270, or fuel-grade ethanol with no denaturant. Account for the volume of any denaturant when calculating volumetric percentages.

(d) The blended test fuel must have a dry vapor pressure equivalent between 41.5 and 45.1 kPa (6.0 and 6.5 psi) when measured using the procedure specified in §1065.710. You may add commercial grade butane as needed to meet this specification.

[79 FR 23811, Apr. 28, 2014, as amended at 85 FR 78468, Dec. 4, 2020]

§ 1065.735 Diesel exhaust fluid.

(a) Use commercially available diesel exhaust fluid that represents the product that will be used in your in-use engines.

(b) Diesel exhaust fluid for testing must generally conform to the specifications referenced in the definition of “diesel exhaust fluid” in §1065.1001. Use marine-grade diesel exhaust fluid only for marine engines.

[81 FR 74191, Oct. 25, 2016]

§ 1065.740 Lubricants.

(a) Use commercially available lubricating oil that represents the oil that will be used in your engine in use.

(b) You may use lubrication additives, up to the levels that the additive manufacturer recommends.

§ 1065.745 Coolants.

(a) You may use commercially available antifreeze mixtures or other cool-

ants that will be used in your engine in use.

(b) For laboratory testing of liquid-cooled engines, you may use water with or without rust inhibitors.

(c) For coolants allowed in paragraphs (a) and (b) of this section, you may use rust inhibitors and additives required for lubricity, up to the levels that the additive manufacturer recommends.

§ 1065.750 Analytical gases.

Analytical gases must meet the accuracy and purity specifications of this section, unless you can show that other specifications would not affect your ability to show that you comply with all applicable emission standards.

(a) Subparts C, D, F, and J of this part refer to the following gas specifications:

(1) Use purified gases to zero measurement instruments and to blend with calibration gases. Use gases with contamination no higher than the highest of the following values in the gas cylinder or at the outlet of a zero-gas generator:

(i) 2% contamination, measured relative to the flow-weighted mean concentration expected at the standard. For example, if you would expect a flow-weighted CO concentration of 100.0 µmol/mol, then you would be allowed to use a zero gas with CO contamination less than or equal to 2.000 µmol/mol.

(ii) Contamination as specified in the following table:

TABLE 1 TO PARAGRAPH (a)(1)(ii) OF § 1065.750—GENERAL SPECIFICATIONS FOR PURIFIED GASES^A

Constituent	Purified Air	Purified N ₂
THC (C ₁ -equivalent)	≤ 0.05 µmol/mol	≤ 0.05 µmol/mol
CO	≤ 1 µmol/mol	≤ 1 µmol/mol
CO ₂	≤ 10 µmol/mol	≤ 10 µmol/mol
O ₂	0.205 to 0.215 mol/mol	≤ 2 µmol/mol
NO _x	≤ 0.02 µmol/mol	≤ 0.02 µmol/mol
N ₂ O ^b	≤ 0.02 µmol/mol	≤ 0.02 µmol/mol
H ₂ ^c	≤ 1 µmol/mol	≤ 1 µmol/mol
NH ₃ ^d	≤ 1 µmol/mol	≤ 1 µmol/mol
H ₂ O ^e	≤ 5 µmol/mol	≤ 5 µmol/mol

^aWe do not require these levels of purity to be NIST-traceable.
^bThe N₂O limit applies only if the standard-setting part requires you to report N₂O or certify to an N₂O standard.
^cThe H₂ limit only applies for testing with H₂ fuel.
^dThe NH₃ limit only applies for testing with NH₃ fuel.
^eThe H₂O limit only applies for water measurement according to § 1065.257.

(2) Use the following gases with a FID analyzer:

(i) *FID fuel*. Use FID fuel with a stated H₂ concentration of (0.39 to 0.41)

mol/mol, balance He or N₂, and a stated total hydrocarbon concentration of 0.05 μmol/mol or less. For GC-FIDs that measure methane (CH₄) using a FID fuel that is balance N₂, perform the CH₄ measurement as described in SAE J1151 (incorporated by reference, see § 1065.1010).

(ii) *FID burner air*. Use FID burner air that meets the specifications of purified air in paragraph (a)(1) of this section. For field testing, you may use ambient air.

(iii) *FID zero gas*. Zero flame-ionization detectors with purified gas that meets the specifications in paragraph (a)(1) of this section, except that the purified gas O₂ concentration may be any value. Note that FID zero balance gases may be any combination of purified air and purified nitrogen. We recommend FID analyzer zero gases that contain approximately the expected flow-weighted mean concentration of O₂ in the exhaust sample during testing.

(iv) *FID propane span gas*. Span and calibrate THC FID with span concentrations of propane, C₃H₈. Calibrate on a carbon number basis of one (C₁). For example, if you use a C₃H₈ span gas of concentration 200 μmol/mol, span a FID to respond with a value of 600 μmol/mol. Note that FID span balance gases may be any combination of purified air and purified nitrogen. We recommend FID analyzer span gases that contain approximately the flow-weighted mean concentration of O₂ expected during testing. If the expected O₂ concentration in the exhaust sample is zero, we recommend using a balance gas of purified nitrogen.

(v) *FID CH₄ span gas*. If you always span and calibrate a CH₄ FID with a nonmethane cutter, then span and calibrate the FID with span concentrations of CH₄. Calibrate on a carbon number basis of one (C₁). For example, if you use a CH₄ span gas of concentration 200 μmol/mol, span a FID to respond with a value of 200 μmol/mol. Note that FID span balance gases may be any combination of purified air and purified nitrogen. We recommend FID analyzer span gases that contain approximately the expected flow-weighted mean concentration of O₂ in the exhaust sample during testing. If the expected O₂ con-

centration in the exhaust sample is zero, we recommend using a balance gas of purified nitrogen.

(3) Use the following gas mixtures, with gases traceable within ±1% of the NIST-accepted gas standard value or other gas standards we approve:

(i) CH₄, balance purified air and/or N₂ (as applicable).

(ii) C₂H₆, balance purified air and/or N₂ (as applicable).

(iii) C₃H₈, balance purified air and/or N₂ (as applicable).

(iv) CO, balance purified N₂.

(v) CO₂, balance purified N₂.

(vi) NO, balance purified N₂.

(vii) NO₂, balance purified air.

(viii) O₂, balance purified N₂.

(ix) C₃H₈, CO, CO₂, NO, balance purified N₂.

(x) C₃H₈, CH₄, CO, CO₂, NO, balance purified N₂.

(xi) N₂O, balance purified air and/or N₂ (as applicable).

(xii) CH₄, C₂H₆, balance purified air and/or N₂ (as applicable).

(xiii) CH₄, CH₂O₂, C₂H₂, C₂H₄, C₂H₄O, C₂H₆, C₃H₈, C₃H₆, CH₄O, and C₄H₁₀. You may omit individual gas constituents from this gas mixture. If your gas mixture contains oxygenated hydrocarbons, your gas mixture must be in balance purified N₂, otherwise you may use balance purified air.

(4) You may use gases for species other than those listed in paragraph (a)(3) of this section (such as methanol in air, which you may use to determine response factors), as long as they are traceable to within ±3% of the NIST-accepted value or other similar standards we approve, and meet the stability requirements of paragraph (b) of this section.

(5) You may generate your own calibration gases using a precision blending device, such as a gas divider, to dilute gases with purified N₂ or purified air. If your gas divider meets the specifications in § 1065.248, and the gases being blended meet the requirements of paragraphs (a)(1) and (3) of this section, the resulting blends are considered to meet the requirements of this paragraph (a).

(6) If you measure H₂O using an FTIR analyzer, generate H₂O calibration gases with a humidity generator using one of the options in this paragraph