

§ 1065.710

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[73 FR 37340, June 30, 2008]

§ 1065.710 Gasoline.

(a) Gasoline for testing must have octane values that represent commercially available fuels for the appropriate application.

(b) There are two grades of gasoline specified for use as a test fuel. If the

standard-setting part requires testing with fuel appropriate for low temperatures, use the test fuel specified for low-temperature testing. Otherwise, use the test fuel specified for general testing. The two grades are specified in Table 1 of this section.

TABLE 1 OF § 1065.710—TEST FUEL SPECIFICATIONS FOR GASOLINE

| Item | Units | General testing | Low-temperature testing | Reference procedure ¹ |
|--|--------------------------------------|--------------------------------|-------------------------|----------------------------------|
| Distillation Range: | | | | |
| Initial boiling point | °C | 24–35 ² | 24–36. | ASTM D86–07a. |
| 10% point | °C | 49–57 | 37–48 | |
| 50% point | °C | 93–110 | 82–101. | |
| 90% point | °C | 149–163 | 158–174. | |
| End point | °C | Maximum, 213 | Maximum, 212. | |
| Hydrocarbon composition: | | | | |
| Olefins | m ³ /m ³ | Maximum, 0.10 | Maximum, 0.175 | ASTM D1319–03. |
| Aromatics | | Maximum, 0.35 | Maximum, 0.304. | |
| Saturates | | Remainder | Remainder. | |
| Lead (organic) | g/liter | Maximum, 0.013 | Maximum, 0.013 | ASTM D3237–06e01. |
| Phosphorous | g/liter | Maximum, 0.0013 | Maximum, 0.005 | ASTM D3231–07. |
| Total sulfur | mg/kg | Maximum, 80 | Maximum, 80 | ASTM D2622–07. |
| Volatility (Reid Vapor Pressure) | kPa | 60.0–63.4 ^{2,3} | 77.2–81.4 | ASTM D5191–07. |

¹ ASTM procedures are incorporated by reference in § 1065.1010. See § 1065.701(d) for other allowed procedures.
² For testing at altitudes above 1,219 m, the specified volatility range is (52.0 to 55.2) kPa and the specified initial boiling point range is (23.9 to 40.6) °C.
³ For testing unrelated to evaporative emissions, the specified range is (55.2 to 63.4) kPa.

[70 FR 40516, July 13, 2005, as amended at 73 FR 37341, June 30, 2008]

§ 1065.715 Natural gas.

(a) Except as specified in paragraph (b) of this section, natural gas for testing must meet the specifications in the following table:

TABLE 1 OF § 1065.715—TEST FUEL SPECIFICATIONS FOR NATURAL GAS

| Item | Value ¹ |
|--|--------------------------|
| Methane, CH ₄ | Minimum, 0.87 mol/mol. |
| Ethane, C ₂ H ₆ | Maximum, 0.055 mol/mol. |
| Propane, C ₃ H ₈ | Maximum, 0.012 mol/mol. |
| Butane, C ₄ H ₁₀ | Maximum, 0.0035 mol/mol. |
| Pentane, C ₅ H ₁₂ | Maximum, 0.0013 mol/mol. |
| C ₆ and higher | Maximum, 0.001 mol/mol. |
| Oxygen | Maximum, 0.001 mol/mol. |
| Inert gases (sum of CO ₂ and N ₂) | Maximum, 0.051 mol/mol. |

¹ All parameters are based on the reference procedures in ASTM D1945–03 (incorporated by reference in § 1065.1010). See § 1065.701(d) for other allowed procedures.

(b) In certain cases you may use test fuel not meeting the specifications in paragraph (a) of this section, as follows:

(1) You may use fuel that your in-use engines normally use, such as pipeline natural gas.

(2) You may use fuel meeting alternate specifications if the standard-setting part allows it.

(3) You may ask for approval to use fuel that does not meet the specifications in paragraph (a) of this section,

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but only if using the fuel would not adversely affect your ability to demonstrate compliance with the applicable standards.

(c) When we conduct testing using natural gas, we will use fuel that meets the specifications in paragraph (a) of this section.

(d) At ambient conditions, natural gas must have a distinctive odor de-

tectable down to a concentration in air not more than one-fifth the lower flammable limit.

[73 FR 37342, June 30, 2008]

§ 1065.720 Liquefied petroleum gas.

(a) Except as specified in paragraph (b) of this section, liquefied petroleum gas for testing must meet the specifications in the following table:

TABLE 1 OF § 1065.720—TEST FUEL SPECIFICATIONS FOR LIQUEFIED PETROLEUM GAS

| Item | Value | Reference procedure ¹ |
|--|---|---|
| Propane, C ₃ H ₈ | Minimum, 0.85 m ³ /m ³ | ASTM D2163-05. |
| Vapor pressure at 38 °C | Maximum, 1400 kPa | ASTM D1267-02 or 2598-02 ² . |
| Volatility residue (evaporated temperature, 35 °C) | Maximum, -38 °C | ASTM D1837-02a. |
| Butanes | Maximum, 0.05 m ³ /m ³ | ASTM D2163-05. |
| Butenes | Maximum, 0.02 m ³ /m ³ | ASTM D2163-05. |
| Pentenes and heavier | Maximum, 0.005 m ³ /m ³ | ASTM D2163-05. |
| Propene | Maximum, 0.1 m ³ /m ³ | ASTM D2163-05. |
| Residual matter (residue on evap. of 100 ml oil stain observ.) | Maximum, 0.05 ml pass ³ | ASTM D2158-05. |
| Corrosion, copper strip | Maximum, No. 1 | ASTM D1838-07. |
| Sulfur | Maximum, 80 mg/kg | ASTM D2784-06. |
| Moisture content | pass | ASTM D2713-91. |

¹ ASTM procedures are incorporated by reference in § 1065.1010. See § 1065.701(d) for other allowed procedures.

² If these two test methods yield different results, use the results from ASTM D1267-02.

³ The test fuel must not yield a persistent oil ring when you add 0.3 ml of solvent residue mixture to a filter paper in 0.1 ml increments and examine it in daylight after two minutes.

(b) In certain cases you may use test fuel not meeting the specifications in paragraph (a) of this section, as follows:

(1) You may use fuel that your in-use engines normally use, such as commercial-quality liquefied petroleum gas.

(2) You may use fuel meeting alternate specifications if the standard-setting part allows it.

(3) You may ask for approval to use fuel that does not meet the specifications in paragraph (a) of this section, but only if using the fuel would not adversely affect your ability to demonstrate compliance with the applicable standards.

(c) When we conduct testing using liquefied petroleum gas, we will use fuel that meets the specifications in paragraph (a) of this section.

(d) At ambient conditions, liquefied petroleum gas must have a distinctive odor detectable down to a concentration in air not more than one-fifth the lower flammable limit.

[73 FR 37342, June 30, 2008]

§ 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 coolants 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