

§ 1065.715

§ 1065.715 Natural gas.

(a) 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 |
|---|--------------------------|
| 1. Methane, CH ₄ | Minimum, 0.87 mol/mol. |
| 2. Ethane, C ₂ H ₆ | Maximum, 0.055 mol/mol. |
| 3. Propane, C ₃ H ₈ | Maximum, 0.012 mol/mol. |
| 4. Butane, C ₄ H ₁₀ | Maximum, 0.0035 mol/mol. |
| 5. Pentane, C ₅ H ₁₂ | Maximum, 0.0013 mol/mol. |
| 6. C ₆ and higher | Maximum, 0.001 mol/mol. |
| 7. Oxygen | Maximum, 0.001 mol/mol. |
| 8. 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 D 1945-03 (incorporated by reference in § 1065.1010). See § 1065.701(d) for other allowed procedures.

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

§ 1065.720 Liquefied petroleum gas.

(a) 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 |
|--|---|--|
| 1. Propane, C ₃ H ₈ | Minimum, 0.85 m ³ /m ³ | ASTM D 2163-91 |
| 2. Vapor pressure at 38 °C | Maximum, 1400 kPa | ASTM D 1267-02 or 2598-02 ² |
| 3. Volatility residue evaporated temperature, 35 °C) | Maximum, -38 °C | ASTM D 1837-02a |
| 4. Butanes | Maximum, 0.05 m ³ /m ³ | ASTM D 2163-91 |
| 5. Butenes | Maximum, 0.02 m ³ /m ³ | ASTM D 2163-91 |
| 6. Pentenes and heavier | Maximum, 0.005 m ³ /m ³ | ASTM D 2163-91 |
| 7. Propene | Maximum, 0.1 m ³ /m ³ | ASTM D 2163-91 |
| 8. Residual matter (residue on evap. of 100) ml oil stain observ.) | Maximum, 0.05 ml pass ³ | ASTM D 2158-04 |
| 9. Corrosion, copper strip | Maximum, No. 1 | ASTM D 1838-03 |
| 10. Sulfur | Maximum, 80 mg/kg | ASTM D 2784-98 |
| 11. Moisture content | pass | ASTM D 2713-91 |

¹ All 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 D 1267-02.
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) 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.

§ 1065.745 Coolants.

(a) You may use commercially available antifreeze mixtures or other coolants that will be used in your engine in use.

§ 1065.740 Lubricants.

(a) Use commercially available lubricating oil that represents the oil 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.

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

(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.