§ 1065.120 Fuel properties and fuel temperature and pressure.

(a) Use fuels as specified in the standard-setting part, or as specified in subpart H of this part if fuels are not specified in the standard-setting part.

(b) If the engine manufacturer specifies fuel temperature and pressure tolerances and the location where they are to be measured, then measure the fuel temperature and pressure at the specified location to show that you are within these tolerances throughout testing.

(c) If the engine manufacturer does not specify fuel temperature and pressure tolerances, use good engineering judgment to set and control fuel temperature and pressure in a way that represents typical in-use fuel temperatures and pressures.

§ 1065.122 Engine cooling and lubrication.

(a) Engine cooling. Cool the engine during testing so its intake-air, oil, coolant, block, and head temperatures are within their expected ranges for normal operation. You may use auxiliary coolers and fans.

§ 1065.120 Fuel properties and fuel temperature and pressure.

(a) Use fuels as specified in the standard-setting part, or as specified in subpart H of this part if fuels are not specified in the standard-setting part.

(b) If the engine manufacturer specifies fuel temperature and pressure tolerances and the location where they are to be measured, then measure the fuel temperature and pressure at the specified location to show that you are within these tolerances throughout testing.

(c) If the engine manufacturer does not specify fuel temperature and pressure tolerances, use good engineering judgment to set and control fuel temperature and pressure in a way that represents typical in-use fuel temperatures and pressures.

§ 1065.122 Engine cooling and lubrication.

(a) Engine cooling. Cool the engine during testing so its intake-air, oil, coolant, block, and head temperatures are within their expected ranges for normal operation. You may use auxiliary coolers and fans.
(1) For air-cooled engines only, if you use auxiliary fans you must account for work input to the fan(s) according to §1065.110.
(2) See §1065.125 for more information related to intake-air cooling.
(3) See §1065.127 for more information related to exhaust gas recirculation cooling.
(4) Measure temperatures at the manufacturer-specified locations. If the manufacturer does not specify temperature measurement locations, then use good engineering judgment to monitor intake-air, oil, coolant, block, and head temperatures to ensure that they are in their expected ranges for normal operation.
(b) Forced cooldown. You may install a forced cooldown system for an engine and an exhaust aftertreatment device according to §1065.530(a)(1).
(c) Lubricating oil. Use lubricating oils specified in §1065.740. For two-stroke engines that involve a specified mixture of fuel and lubricating oil, mix the lubricating oil with the fuel according to the manufacturer’s specifications.
(d) Coolant. For liquid-cooled engines, use coolant as specified in §1065.745.

§ 1065.125 Engine intake air.

(a) Use the intake-air system installed on the engine or one that represents a typical in-use configuration. This includes the charge-air cooling and exhaust gas recirculation systems.
(b) Measure temperature, humidity, and atmospheric pressure near the entrance of the furthest upstream engine or in-use intake system component. This would generally be near the engine’s air filter, or near the inlet to the in-use intake system for engines that have no air filter. For engines with multiple intakes, make measurements near the entrance of each intake.
(1) Pressure. You may use a single shared atmospheric pressure meter as long as your laboratory equipment for handling intake air maintains ambient pressure at all intakes within ±1 kPa of the shared atmospheric pressure. For engines with multiple intakes with separate atmospheric pressure measurements at each intake, use an average value for verifying compliance to §1065.520(b)(2).
(2) Humidity. You may use a single shared humidity measurement for intake air as long as your equipment for handling intake air maintains dewpoint at all intakes to within ±0.5 °C of the shared humidity measurement. For engines with multiple intakes with separate humidity measurements at each intake, use a flow-weighted average humidity for NOX corrections. If individual flows of each intake are not measured, use good engineering judgment to estimate a flow-weighted average humidity.
(3) Temperature. Good engineering judgment may require that you shield the temperature sensors or move them upstream of an elbow in the laboratory intake system to prevent measurement errors due to radiant heating from hot engine surfaces or in-use intake system components. You must limit the distance between the temperature sensor and the entrance to the furthest upstream engine or in-use intake system component to no more than 12 times the outer hydraulic diameter of the entrance to the furthest upstream engine or in-use intake system component. However, you may exceed this limit if you use good engineering judgment to show that the temperature at the furthest upstream engine or in-use intake system component meets the specification in paragraph (c) of this section. If individual flows of each intake are not measured, you may use good engineering judgment to estimate a flow-weighted average temperature. You may also verify that each individual intake complies with the specification in paragraph (c) of this section.
(c) Maintain the temperature of intake air to (25 ±5) °C, except as follows:
(1) Follow the standard-setting part if it specifies different temperatures.
(2) For engines above 560 kW, you may use 35 °C as the upper bound of the tolerance. However, your system must be capable of controlling the temperature to the 25 °C setpoint for any