

## Environmental Protection Agency

## § 94.203

PM=measured weighted PM level [g/KW-hr]  
BSFC=measured brake specific fuel consumption [g/KW-hr]  
FSF=fuel sulfur weight fraction

(e) *Test fuel for Category 3 engines.* For testing Tier 1 engines, use test fuels meeting the specifications listed in the Annex VI Technical Code (incorporated by reference in §94.5).

[64 FR 73331, Dec. 29, 1999, as amended at 67 FR 68345, Nov. 8, 2002; 68 FR 9784, Feb. 28, 2003]

### §94.109 Test procedures for Category 3 marine engines.

(a) Gaseous emissions shall be measured using the test cycles and procedures specified by Section 5 of the Annex VI Technical Code (incorporated by reference in §94.5), except as otherwise specified in this paragraph (a).

(1) The inlet air and exhaust restrictions shall be set at the average in-use levels.

(2) Measurements are valid only for sampling periods in which the temperature of the charge air entering the engine is within 3 °C of the temperature that would occur in-use under ambient conditions (temperature, pressure, and humidity) identical to the test conditions. You may measure emissions within larger discrepancies, but you may not use those measurements to demonstrate compliance.

(3) Engine coolant and engine oil temperatures shall be equivalent to the temperatures that would occur in-use under ambient conditions identical to the test conditions.

(4) Exhaust flow rates shall be calculated using measured fuel flow rates.

(5) Standards used for calibration shall be traceable to NIST standards. (Other national standards may be used if they have been shown to be equivalent to NIST standards.)

(6) Certification tests may be performed at any representative pressure and humidity levels. Certification tests may be performed at any ambient air temperature from 13 °C to 30 °C and any charge air cooling water temperature from 17 °C to 27 °C. These limits apply instead of the limits specified in section 5.2.1 of the Annex VI Technical Code. Correct emissions for test conditions using the corrections specified in section 5.12.3 of the Annex VI Technical Code.

(7) Test cycles shall be denormalized based on the maximum test speed described in §94.107.

(b) Analyzers meeting the specifications of either 40 CFR part 86, subpart N, or ISO 8178-1 (incorporated by reference in §94.5) shall be used to measure THC and CO.

(c) The Administrator may specify changes to the provisions of paragraph (a) of this section that are necessary to comply with the general provisions of §94.102.

[68 FR 9785, Feb. 28, 2003]

## Subpart C—Certification Provisions

### §94.201 Applicability.

The requirements of this subpart are applicable to manufacturers of engines subject to the standards of subpart A of this part.

### §94.202 Definitions.

The definitions of subpart A of this part apply to this subpart.

### §94.203 Application for certification.

(a) For each engine family that complies with all applicable standards and requirements, the manufacturer shall submit to the Administrator a completed application for a certificate of conformity.

(b) The application shall be approved and signed by the authorized representative of the manufacturer.

(c) The application shall be updated and corrected by amendment, where necessary, as provided for in §94.210 to accurately reflect the manufacturer's production.

(d) Each application shall include all the following information:

(1)(i) A description of the basic engine design, including but not limited to, the engine family specifications, the provisions of which are contained in §94.204.

(ii) A list of distinguishable configurations to be included in the engine family.

(2) An explanation of how the emission control system operates, including detailed descriptions of:

(i) All emission control system components;

(ii) The injection timing map or maps (i.e., degrees before or after top-dead-center), and any functional dependence of such timing on other operational parameters (e.g., engine coolant temperature or engine speed);

(iii) Each auxiliary emission control device (AECD); and

(iv) All fuel system components to be installed on any production or test engine(s).

(3) A description of the test engine.

(4) Special or alternate test procedures, if applicable.

(5) A description of the operating cycle and the period of operation necessary to accumulate service hours on the test engine and stabilize emission levels.

(6) A description of all adjustable operating parameters (e.g., injection timing and fuel rate), including all the following:

(i) The nominal or recommended setting and the associated production tolerances.

(ii) The physically adjustable range (Note: if this is different than the intended adjustable range, describe why these are different).

(iii) The limits or stops used to limit adjustable ranges.

(iv) Production tolerances of the limits or stops used to establish each physically adjustable range.

(v) Information relating to the reason that the physical limits or stops used to establish the physically adjustable range of each parameter, or any other means used to inhibit adjustment, are the most effective means possible of preventing adjustment of parameters to settings outside the manufacturer's specified adjustable ranges on in-use engines.

(7) For families participating in the averaging, banking, and trading program, the information specified in subpart D of this part.

(8) Projected U.S.-directed production volume information for each configuration.

(9) A description of the test equipment and fuel used.

(10) All test data obtained by the manufacturer on each test engine.

(11) The intended useful life period for the engine family, in accordance with §94.9(a).

(12) The intended deterioration factors for the engine family, in accordance with §94.218.

(13) All information required for EPA to interpret all messages and parameters broadcast on an engine's controller area network, including but not limited to message or parameter identification, scaling, limit, offset, and transfer function. (The manufacturer may reference publicly released controller area network standards where applicable. The format of this information shall be provided in a format similar to publicly released documents pertaining to controller area network standards.)

(14) (i) For Category 1 and Category 2 engines, a statement that the all the engines included in the engine family comply with the Not To Exceed standards specified in §94.8(e) when operated under all conditions which may reasonably be expected to be encountered in normal operation and use; the manufacturer also must provide a detailed description of all testing, engineering analyses, and other information which provides the basis for this statement.

(ii) [Reserved]

(15) An unconditional statement certifying that all engines included in the engine family comply with all requirements of this part and the Clean Air Act.

(16) A statement indicating duty-cycle and application of the engine (e.g., used to propel planing vessels, use to propel vessels with variable-pitch propellers, constant-speed auxiliary, recreational, etc.).

(e) At the Administrator's request, the manufacturer shall supply such additional information as may be required to evaluate the application.

(f)(1) If the manufacturer submits some or all of the information specified in paragraph (d) of this section in advance of its full application for certification, the Administrator shall review the information and make the determinations required in §94.208 (d) within 90 days of the manufacturer's submittal.

(2) The 90-day decision period is exclusive of any elapsed time during

which EPA is waiting for additional information requested from a manufacturer regarding an adjustable parameter (the 90-day period resumes upon receipt of the manufacturer's response). For example, if EPA requests additional information 30 days after the manufacturer submits information under paragraph (f)(1) of this section, then the Administrator would make a determination within 60 days of the receipt of the requested information from the manufacturer.

(g)(1) The Administrator may modify the information submission requirements of paragraph (d) of this section, provided that all of the information specified therein is maintained by the manufacturer as required by §94.215, and amended, updated, or corrected as necessary.

(2) For the purposes of this paragraph (g), §94.215 includes all information specified in paragraph (d) of this section, whether or not such information is actually submitted to the Administrator for any particular model year.

(3) The Administrator may review a manufacturer's records at any time. At the Administrator's discretion, this review may take place either at the manufacturer's facility or at another facility designated by the Administrator.

[64 FR 73331, Dec. 29, 1999, as amended at 67 FR 68346, Nov. 8, 2002; 68 FR 9785, Feb. 28, 2003]

#### § 94.204 Designation of engine families.

This section specifies the procedure and requirements for grouping of engines into engine families.

(a) Manufacturers shall divide their engines into groupings of engines which are expected to have similar emission characteristics throughout their useful life. Each group shall be defined as a separate engine family.

(b) For Category 1 marine engines, the following characteristics distinguish engine families:

- (1) Fuel;
- (2) Cooling method (including cooling medium);
- (3) Method of air aspiration;
- (4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap);
- (5) Combustion chamber design;
- (6) Bore;

- (7) Stroke;
- (8) Number of cylinders, (engines with aftertreatment devices only);
- (9) Cylinder arrangement (engines with aftertreatment devices only);
- (10) Fuel system configuration; and
- (11) Class (commercial or recreational).

(c) For Category 2 marine engines, the following characteristics distinguish engine families:

- (1) The combustion cycle (e.g., diesel cycle);
- (2) The type of engine cooling employed (air-cooled or water-cooled), and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fan(s), radiator shutters, etc.);
- (3) The bore and stroke dimensions;
- (4) The approximate intake and exhaust event timing and duration (valve or port);
- (5) The location of the intake and exhaust valves (or ports);
- (6) The size of the intake and exhaust valves (or ports);
- (7) The overall injection, or as appropriate ignition, timing characteristics (i.e., the deviation of the timing curves from the optimal fuel economy timing curve must be similar in degree);
- (8) The combustion chamber configuration and the surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions;
- (9) The location of the piston rings on the piston;
- (10) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown);
- (11) The turbocharger or supercharger general performance characteristics (e.g., approximate boost pressure, approximate response time, approximate size relative to engine displacement);

(12) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled);

(13) The intake manifold induction port size and configuration;

(14) The type of fuel and fuel system configuration;

(15) The configuration of the fuel injectors and approximate injection pressure;

(16) The type of fuel and fuel system configuration;

(17) The configuration of the fuel injectors and approximate injection pressure;