(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 injection system controls (i.e., mechanical or electronic);

(17) The type of smoke control system;

(18) The exhaust manifold port size and configuration; and

(19) The type of exhaust aftertreatment system (oxidation catalyst, particulate trap), and characteristics of the aftertreatment system (catalyst loading, converter size vs engine size).

(d) Upon request by the manufacturer, engines that are eligible to be included in the same engine family based on the criteria in paragraph (b) or (c) of this section may be divided into different engine families. This request must be accompanied by information the manufacturer believes supports the use of these different engine families.

(e) Upon request by the manufacturer, the Administrator may allow engines that would be required to be grouped into separate engine families based on the criteria in paragraph (b) or (c) of this section to be grouped into a single engine family if the manufacturer demonstrates that the engines will have similar emission characteristics; however, recreational and commercial engines may not be grouped in the same engine family. This request must be accompanied by emission information supporting the appropriateness of such combined engine families.

(f) Category 3 engines shall be grouped into engine families based on the criteria specified in Section 4.3 of the Annex VI Technical Code (incorporated by reference in § 94.5), except as allowed in paragraphs (d) and (e) of this section.

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

§ 94.205 Prohibited controls, adjustable parameters.

(a) Any system installed on, or incorporated in, a new engine to enable the engine to conform to the standards contained in this part:

(1) Shall not cause a violation of the general standards of § 94.7.

(2) Shall function during all in-use operation, except as otherwise allowed by this part.

(b)(1) Category 1 marine engines equipped with adjustable parameters must comply with all requirements of this subpart for any adjustment in the physically adjustable range.

(2) Category 2 and Category 3 marine engines equipped with adjustable parameters must comply with all requirements of this subpart for any adjustment in the approved adjustable range.

(c) The Administrator may require that adjustable parameters be set to any specification within its adjustable range for certification, selective enforcement audit, or in-use testing to determine compliance with the requirements of this subpart.

(d) In specifying the adjustable range of each adjustable parameter on a new engine, the manufacturer, shall:

(1) Ensure that safe engine operating characteristics are available within that range, as required by section 202(a)(4) of the Clean Air Act, taking into consideration the production tolerances; and

(2) To the maximum extent practicable, limit the physical range of adjustability to that which is necessary for proper operation of the engine.

(e) Tier 1 Category 3 marine engines shall be adjusted according to the manufacturer's specifications for testing.

(f) For Category 3 marine engines, manufacturers must specify in the maintenance instructions how to adjust the engines to achieve emission performance equivalent to the performance demonstrated under the certification test conditions. This must address all necessary adjustments, including those required to address differences in fuel quality or ambient temperatures. For example, equivalent emissions performance can be measured relative to optimal engine performance that could be achieved in the absence of emission standards (*i.e.,* the calibration that result in the lowest fuel consumption and/or maximum firing pressure). In this example, adjustments that achieved the same percent reduction in NO_X emissions from the optimal calibration would be considered to be equivalent. Alternatively, if the engine uses injection timing retard and EGR to reduce emissions, then retarding timing the same number of degrees (relative to optimal engine performance) and using the same rate of EGR at the different conditions would be considered to be equivalent.

[64 FR 73331, Dec. 29, 1999, as amended at 68 FR 9785, Feb. 28, 2003]

§ 94.206 Required information.

(a) The manufacturer shall perform the tests required by the applicable test procedures, and submit to the Administrator the information required by this section: *Provided,* that if requested by the manufacturer, the Administrator may waive any requirement of this section for testing of engines for which the required emission data are otherwise available.

(b) The manufacturer shall submit exhaust emission deterioration factors, with supporting data. The determination of the deterioration factors shall be conducted in accordance with § 94.218 to ensure that the engines covered by a certificate issued under § 94.208 will meet all of the emission standards in § 94.8 in use for the useful life of the engine.

(c) The manufacturer shall submit emission data on such engines tested in accordance with the applicable test procedures of Subpart B of this part. These data shall include zero hour data, if generated. In lieu of providing the emission data required by paragraph (a) of this section, the Administrator may, upon request by the manufacturer, allow the manufacturer to demonstrate (on the basis of previous emission tests, development tests, or other testing information) that the engine will conform with the applicable emission standards of § 94.8.

(d) The manufacturer shall submit a statement that the engines for which certification is requested conform to the requirements in § 94.7 and that the descriptions of tests performed to ascertain compliance with the general standards in § 94.7, and the data derived from such tests, are available to the Administrator upon request.

(e) The manufacturer shall submit a statement that the emission data engine used to demonstrate compliance with the applicable standards of this part is in all material respects as described in the manufacturer's application for certification; that it has been tested in accordance with the applicable test procedures utilizing the fuels