

system so that the engine can be started and stopped automatically on a programmed schedule. Install a starter controller or computer and program it to do the following:

(A) Start the engine and let it run for 5 minutes, and then shut it off and let it hot-soak for 25 minutes.

(B) Repeat the 5/25 cycle for a total of 192 cycles.

(C) Allow a 48-hr hot soak during which the engine is not run but the engine temperature is maintained at 100–102 °C.

(D) Turn off the heaters for 48 hours.

(E) Continuously count and display the number of cycles that have been completed throughout the test.

(4) *Test procedure.* The steps described in paragraphs (c)(3)(i) through (vi) of this section must be performed by the action described in paragraph (c)(3)(vii) of this section so that the new injectors are exposed only to the new test fuel. Take the following additional steps:

(i) Drain the fuel from the vehicle.

(ii) Add approximately 2 gallons of the fuel to be tested.

(iii) Drive the vehicle for approximately 20 miles at speeds up to approximately 50–60 mph. Approximately every 5 miles, stop the vehicle and moderately accelerate. If the radiator covering is still in place, watch the temperature gauge during the driving and avoid overheating the engine. This step not only flushes the fuel system but also helps remove carbon (if any) from the spark plugs and water from the exhaust system.

(iv) Drain the fuel from the vehicle and add approximately 1 to 2 gallons of the fuel to be tested.

(v) Drive the vehicle for approximately 5 miles. Watch the temperature gauge and avoid overheating the engine.

(vi) Drain the fuel from the vehicle and add approximately 10 gallons of the fuel to be tested. (The test consumes about 7.5 gallons of fuel.)

(vii) Remove the fuel injectors and install new injectors. Run the engine for a few minutes to be sure it runs properly.

(viii) Park the vehicle in the location where the test will be run.

(ix) Connect the vehicle tail pipe to the building exhaust system.

(x) Depending on the design of the starter control system, remove fuses and relays as necessary and connect the wires from the controller to the vehicle fuse box. Close the hood.

(xi) Turn on the vehicle ignition switch and the security bypass switch if so equipped.

(xii) Turn on the heater controller and be sure that it is working.

(xiii) Turn on the starter controller and the vehicle should start.

(xiv) Monitor the engine temperature for the first few cycles to be sure it is increasing.

(xv) At the end of the 192-hour (8-day) test, turn off the ignition switch, starter controller, and heater controller. Return the fuses, relays, and wires to their standard configuration for normal operation of the vehicle.

(xvi) Connect the Tech 2 analyzer to the ALDL connector under the instrument panel, and connect the fuel pressure gauge to the service port on the fuel rail at the back of the engine.

(xvii) Conduct the injector balance test by following the instructions on the Tech 2. The injector balance test checks each injector individually to determine whether the poppet nozzle is stuck closed. First, the Tech 2 turns on the fuel pump momentarily to pressurize the fuel system. Then it pulses the injector for a preset interval. If the injector and poppet nozzle are working properly, the fuel system pressure will decrease gradually and smoothly by about 8 to 10 psi during the pulsing. If the pressure does not decrease, or decreases very suddenly but then stops decreasing before the pulsing is done, the poppet is stuck closed. This procedure, beginning with pressurizing the fuel system, is carried out for each injector.

[79 FR 23649, Apr. 28, 2014]

§ 80.177 Certification test fuels for use with the alternative test procedures and standards.

(a) *General requirements.* This section provides specifications for the test fuels required in conjunction with the alternative national generic certification option described in § 80.163(a)(1)(iii).

(1) The test fuel characteristics detailed in this section must be reported to EPA in the detergent certification letter required pursuant to § 80.161(b)(3).

(2) The levels of the basic fuel parameters specified in this section (ethanol, olefins, aromatics, sulfur, and 90% evaporation distillation temperature) must be measured in accordance with applicable procedures in § 80.46.

(3) No detergent-active substance other than the detergent additive package undergoing testing may be added to a certification test fuel. Typical nondetergent additives, such as antioxidants, corrosion inhibitors, and metal deactivators, may be present in the test fuel at the discretion of the additive certifier. In addition, any nondetergent additives (other than oxygenate compounds) which are commonly blended into gasoline and which are known or suspected to affect IVD or PFID formation, or to reduce the ability of the detergent in question to control such deposits, should be added to the test fuel for certification testing.

(4) Certification test requirements may be satisfied for a detergent additive using more than one batch of test fuel, provided that each batch satisfies all applicable test fuel requirements under this section.

(5) Unless otherwise required by this section, finished test fuels must conform to the requirements for commercial gasoline described in ASTM D4814.

(b) *Test fuel for intake valve deposit testing.* The following specifications apply for the test fuels required for use in the test procedure specified in § 80.176(b):

(1) The test fuel must contain no less than 8.0 volume percent and no more than 10.0 volume percent ethanol. Commercial fuel grade denatured fuel ethanol must be used that conforms to the requirement of § 80.1610 and ASTM D4806.

(2) The test fuel must contain no less than 8.0 volume percent olefins. At least 75 percent of the olefins must be derived from fluid catalytic cracker unit (FCC) gasoline. Such FCC gasoline can be full-range FCC gasoline or a mixture of light and heavy FCC gasolines. Such FCC gasoline must be pro-

duced by a commercial gasoline refiner and meet the following criteria:

(i) The FCC gasoline must be designated by the commercial refiner as full range FCC gasoline or whole FCC gasoline, and must have a T90 distillation temperature greater than 300 °F.

(ii) If a mixture of light and heavy FCC gasoline is used, heavy FCC gasoline must contribute at least 50 percent of the sulfur in the mixture. Heavy FCC gasoline must meet all the following criteria:

(A) The heavy FCC gasoline must be designated by the commercial refiner as heavy FCC gasoline.

(B) The heavy FCC gasoline must have an API gravity less than 45 and a T90 distillation temperature greater than 325 °F.

(3) The test fuel must contain no less than 28 volume percent aromatics.

(4) The test fuel must contain no less than 24 ppm sulfur. At least 60 percent of the sulfur must be derived from FCC gasoline that meets the specifications in paragraph (b)(2) of this section.

(5) The test fuel must have a T90 distillation temperature of no less than 290 °F.

(6) The test fuel containing no deposit control additives must produce no less than 500 mg averaged over all intake valves when subjected to the intake valve deposit test specified in § 80.176(b).

(7) All gasoline blendstocks used to formulate the test fuel must be representative of normal refinery operations and shall be derived from conversion units downstream of distillation. Butanes and pentanes may be used for vapor pressure adjustment. The use of chemical grade streams is prohibited.

(c) *Test fuel for fuel injector deposit testing:* This paragraph provides specifications for the test fuels required for use in the test procedure specified in § 80.176(c). The test fuel must conform to the specifications in either paragraph (c)(1) or (c)(2) of this section. The same base test fuel must be used for deposit demonstration testing and for demonstrating compliance with the fuel injector deposit control standards in § 80.176(a).

§§ 80.180–80.185

(1) *Option 1.* (i) The test fuel must be a commercial full boiling range hydrocarbon gasoline or gasoline blending component, without oxygenates.

(ii) The test fuel containing no deposit control additives must produce at least 5 inoperable injectors valves when subjected to the fuel injector deposit test specified in §80.176(c).

(2) *Option 2.* (i) The test fuel must meet the requirements for federal emissions test gasoline specified in §§80.112 and 80.113 into which 4-methylbenzenethiol has been blended as a concentration of 56 mg/L.

(ii) The test fuel containing no deposit control additives must produce at least 4 inoperable injectors valves when subjected to the fuel injector deposit test specified in §80.176(c).

(d) *Materials incorporated by reference.* The published materials identified in this section are incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, a document must be published in the FEDERAL REGISTER and the material must be available to the public. All approved materials are available for inspection at the Air and Radiation Docket and Information Center (Air Docket) in the EPA Docket Center (EPA/DC) at Rm. 3334, EPA West Bldg., 1301 Constitution Ave. NW., Washington, DC. The EPA/DC Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number of the EPA/DC Public Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742. These approved materials are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. In addition, these materials are available from the sources listed below.

(1) *ASTM International material.* The following standards are available from ASTM International, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken,

40 CFR Ch. I (7–1–14 Edition)

PA 19428–2959, (877) 909–ASTM, or <http://www.astm.org>;

(i) ASTM D4806–13a, Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel, approved June 15, 2013.

(ii) ASTM D4814–13b, Standard Specification for Automotive Spark-Ignition Engine Fuel, approved December 1, 2013.

(2) [Reserved]

[79 FR 23651, Apr. 28, 2014]

Subpart H—Gasoline Sulfur

SOURCE: 65 FR 6823, Feb. 10, 2000, unless otherwise noted.

GENERAL INFORMATION

§§ 80.180–80.185 [Reserved]

§ 80.190 Who must register with EPA under the sulfur program?

(a) Refiners and importers who are registered by EPA under §80.76 are deemed to be registered for purposes of this subpart.

(b) Refiners and importers subject to the standards in §80.195 who are not registered by EPA under §80.76 must provide to EPA the information required by §80.76 by November 1, 2003, or not later than three months in advance of the first date that such person produces or imports gasoline, whichever is later.

(c) Refiners with any refinery subject to the small refiner standards under §80.240, or refiners subject to the geographic phase-in area (GPA) standards under §80.216, who are not registered by EPA under §80.76 must provide to EPA the information required under §80.76 by December 31, 2000.

(d) Any refiner who plans to generate credits or allotments under §80.305 or §80.275 in any year prior to 2004 who is not registered by EPA under §80.76 must register under §80.76 no later than September 30 of the year prior to the first year of credit generation. Any refiner who plans to generate credits in 2000 who is not registered by EPA under §80.76 must register under §80.76 no later than May 10, 2000.