

§ 2282. Aromatic Hydrocarbon Content of Diesel Fuel

(a) *Regulatory Standard.*

(1) On or after October 1, 1993, except as otherwise provided in this subsection (a), no person shall sell, offer for sale, or supply any vehicular diesel fuel unless:

(A) The aromatic hydrocarbon content does not exceed 10 percent by volume; or

(B) The vehicular diesel fuel has been reported in accordance with all of the requirements of subsection (d), and:

1. The aromatic hydrocarbon content does not exceed the designated alternative aromatic hydrocarbon limit, and

2. Where the designated alternative aromatic hydrocarbon limit exceeds 10 percent by volume, the excess aromatic hydrocarbon content is fully offset in accordance with subsection (d); or

(C) The vehicular diesel fuel has been reported in accordance with all of the requirements of subsection (g)(7), and meets all of the specifications for a certified diesel fuel formulation identified in an applicable Executive Order issued pursuant to subsection (g)(6); or

(D) The vehicular diesel fuel has been reported in accordance with all of the requirements of subsection (h)(2), and meets all of the designated equivalent limits set forth in subsection (h)(1); or

(E) The vehicular diesel fuel is exempt under subsection (e) and:

1. The aromatic hydrocarbon content does not exceed 20 percent by volume; or

2. The vehicular diesel fuel has been reported in accordance with all of the requirements of subsection (d), and

a. The aromatic hydrocarbon content does not exceed the designated alternative limit, and

b. Where the designated alternative limit exceeds 20 percent by volume, the excess aromatic hydrocarbon content is fully offset in accordance with subsection (d), treating all references in subsection (d) to 10 percent by volume as references to 20 percent by volume; or

3. The vehicular diesel fuel has been reported in accordance with all of the requirements of subsection (g)(7), and meets all of the specifications for a certified diesel fuel formulation identified in an applicable Executive Order issued pursuant to subsections (g)(6) and (g)(8).

(2) *Applicability of standards to California nonvehicular diesel fuel.* Activities involving California nonvehicular diesel fuel (other than diesel fuel offered, sold or supplied solely for use in locomotives or marine vessels) are also subject to this section to the extent required by section 93114, title 17, California Code of Regulations. As adopted, section 93114 requires each air pollution control or air quality management district by December 12, 2004, to treat this section 2282 as applying to California nonvehicular diesel fuel (other than diesel fuel offered, sold or supplied solely for use in locomotives or marine vessels) as if it were vehicular diesel fuel, and to enforce those requirements regarding California nonvehicular diesel fuel, unless the district has proposed its own airborne toxic control measure to reduce particulate emissions from diesel-fueled engines through standards for nonvehicular diesel fuel.

- (3) Subsection (a)(1) shall not apply to a sale, offer for sale, or supply of vehicular diesel fuel to a refiner where the refiner further processes the diesel fuel at the refiner's refinery prior to any subsequent sale, offer for sale, or supply of the diesel fuel.

(b) *Definitions.*

For the purposes of this section:

- (0.5) "Aromatic hydrocarbon" has the same meaning as "total aromatic hydrocarbons."
- (0.7) "California nonvehicular diesel fuel" means any diesel fuel that is not vehicular diesel fuel and that is sold or made available for use in engines in California.
- (1) "Chemical composition" means the name and percentage by weight of each compound in an additive and the name and percentage by weight of each element in an additive.
- (2) "Designated alternative limit" means an alternative aromatic hydrocarbon limit, expressed in percent aromatic hydrocarbon content by volume, which is assigned by a producer or importer to a final blend of vehicular diesel fuel pursuant to subsection (d).
- (3) "Diesel fuel" means any fuel that is commonly or commercially known, sold or represented as diesel fuel, including any mixture of primarily liquid hydrocarbons – organic compounds consisting exclusively of the elements carbon and hydrogen – that is sold or represented as suitable for use in an internal combustion, compression-ignition engine.

(4) "Exempt volume" means:

(A) Except as otherwise provided in subsection (b)(4)(B), 65 percent of the average of the three highest annual production volumes of distillate fuel reported for a small refiner's California refinery in the period 1983 to 1987, inclusive, to the California Energy Commission (CEC) as required by the Petroleum Industry Information Reporting Act of 1980 (Public Resources Code Sections 25350 et seq.); provided that for any small refiner that reported no distillate fuel production for two or more years in the 1983-1987 period and that has installed hydrotreating processes which allow the production of diesel fuel with a sulfur content of 500 parts per million or less, exempt volume may be calculated as 65 percent of the average annual production volumes of distillate fuel reported for the small refiner's California refinery for 1989 and 1990.

(B) In the case of a small refiner who, in an application or amended application submitted pursuant to subsection (e)(2), notifies the executive officer of its election to be subject to this subsection (b)(4)(B), a volume determined in accordance with the following four steps:

1. First, the barrel per calendar day "operable crude oil capacity" of the small refiner's refinery for 1991 and 1992 is identified, based on data which are reported to the executive officer from the CEC and are derived from "Monthly Refining Reports" (EIA 810, Revised 1/89) submitted to the CEC no later than June 20, 1994. If the CEC is unable to derive such data from the "Monthly Refining Reports" for a particular small refiner, the executive officer shall determine the small refiner's operable crude oil capacity for 1991 and 1992 based on other publicly available and generally recognized sources.
2. Second, this operable crude oil capacity is multiplied by 0.9011, representing the overall refinery utilization rate (crude oil run divided by operable crude oil capacity) in the California refining industry for 1991 and 1992, as derived from reports of crude oil run and operable capacity in the "Quarterly Oil Reports" issued by the CEC.
3. Third, the resulting crude throughput volume is multiplied by the average of the refinery's two highest annual ratios of distillate produced to crude oil distilled in the period 1988 through 1992, based on distillate production data recorded by the CEC from MO-7 reporting forms (Revised 11/87) submitted to the CEC no later than June 30, 1994 and from crude oil run data derived by the CEC from "Monthly Refining Reports" submitted to the CEC no later than June 30, 1994, and is further multiplied by 365 to identify an annualized value.
4. Fourth, the resulting annual volume of distillate production is multiplied by a fraction determined in accordance with this subsection (b)(4)(B)4., which represents the average proportion of small refiners' distillate production that has been sold as diesel fuel for use in motor vehicles in California from 1988 through 1992. The fraction shall

be based on the activities of all small refiners who during October 1, 1993 through June 30, 1994 lawfully produced and supplied vehicular diesel fuel. With respect to each such small refiner, the executive officer shall calculate a single fraction representing the average of the refiner's two highest annual ratios of [a] diesel fuel produced by the small refiner and sold for use in California motor vehicles to [b] distillate produced, over the period 1988 through 1992. In calculating these ratios, distillate production shall be based on distillate production data recorded by the CEC from MO-7 reporting forms (Revised 11/87) submitted to the CEC no later than June 30, 1994, and the volume of diesel fuel produced by the small refiner and sold for use in California motor vehicles shall be derived from sales data certified by authorized representatives of the small refiners and such other information from the small refiners deemed necessary by the executive officer. The executive officer shall then combine the single fractions for each such small refiner. The annual distillate production volume identified pursuant to subsection (b)(4)(B)3. shall be multiplied by the fraction that represents the average of the single fractions for each small refiner.

- (5) "Executive Officer" means the executive officer of the Air Resources Board, or his or her designee.
- (6) "Final blend" means a distinct quantity of diesel fuel which is introduced into commerce in California without further alteration which would tend to affect the fuel's aromatic hydrocarbon content.
- (7) "Formulation" means the composition of a diesel fuel represented by a test fuel submitted pursuant to subsection (g).
- (8) "Further process" means to perform any activity on diesel fuel, including distillation, treating with hydrogen, or blending, for the purpose of bringing the diesel fuel into compliance with the standards in subsection (a)(1).
- (9) "Hydrodearomatization process" means a type of hydrotreating process in which hydrogen is used in the presence of heat, pressure, and catalysts to saturate aromatic hydrocarbons in order to produce low-aromatic hydrocarbon content diesel fuel.
- (10) "Importer" means any person who first accepts delivery in California of vehicular diesel fuel.
- (11) "Import facility" means the facility at which imported diesel fuel is first received in California, including, in the case of diesel fuel imported by cargo tank and delivered directly to a facility for dispensing diesel fuel into motor vehicles, the cargo tank in which the diesel fuel is imported.
- (12) "Marine vessel" has the meaning set forth in section 39037.1 of the Health and Safety Code.
- (13) "Motor vehicle" has the same meaning as defined in Section 415 of the Vehicle Code.

- (14) "Polycyclic aromatic" (also referred to as "polynuclear aromatic hydrocarbons" or "PAH") means an organic compound containing two or more aromatic rings.
- (15)(A) "Produce" means to convert liquid compounds which are not diesel fuel into diesel fuel. When a person blends volumes of blendstocks which are not diesel fuel with volumes of diesel fuel acquired from another person, and the resulting blend is diesel fuel, the person conducting such blending has produced only the portion of the blend which was not previously diesel fuel. When a person blends diesel fuel with other volumes of diesel fuel, without the addition of blendstocks which are not diesel fuel, the person does not produce diesel fuel.
- (B) Subsection (b)(15)(A) notwithstanding, for the purposes of subsection (e) only, a small refiner who blends volumes of blendstocks which are not diesel fuel, or volumes of diesel fuel having an aromatic hydrocarbon content exceeding 20 percent by volume, with diesel fuel acquired from another person, in order to make diesel fuel having an aromatic hydrocarbon content not exceeding 20 percent by volume, shall be deemed to have produced the entire volume of the resulting blend and the person who initially converted non-diesel compounds into the acquired diesel fuel has also produced the volume of acquired diesel fuel.
- (16) "Producer" means any person who produces vehicular diesel fuel in California.
- (17) "Refiner" means any person who owns, leases, operates, controls or supervises a refinery.
- (18) "Refinery" means a facility that produces liquid fuels by distilling petroleum. A small refiner's refinery includes all bulk storage and bulk distribution facilities jointly owned or leased with the facility that produces liquid fuels by distilling petroleum.
- (19) "Small refiner" means any refiner who owns or operates a refinery in California that:
- (A) Has and at all times had since January 1, 1978, a crude oil capacity of not more than 55,000 barrels per stream day;
 - (B) Has not been at any time since September 1, 1988, owned or controlled by any refiner that at the same time owned or controlled refineries in California with a total combined crude oil capacity of more than 55,000 barrels per stream day; and
 - (C) Has not been at any time since September 1, 1988, owned or controlled by any refiner that at the same time owned or controlled refineries in the United States with a total combined crude oil capacity of more than 137,500 barrels per stream day.

- (20) "Straight-run California diesel fuel" means diesel fuel produced from crude oil which is commercially available in California by distillation, without the use of cracking or other chemical conversion processes.
- (21) "Stream day" means 24 consecutive hours of actual operation of a refinery.
- (22) "Supply" means to provide or transfer a product to a physically separate facility, vehicle, or transportation system.
- (23) "Vehicular diesel fuel" means any diesel fuel (A) which is not conspicuously identified as a fuel which may not lawfully be dispensed into motor vehicle fuel tanks in California; or (B) which the person selling, offering for sale, or supplying the diesel fuel knows will be dispensed into motor vehicle fuel tanks in California; or (C) which the person selling, offering for sale, or supplying the diesel fuel in the exercise of reasonable prudence should know will be dispensed into motor vehicle fuel tanks in California, and that is not the subject of a declaration under penalty of perjury by the purchaser, offeree or recipient stating that s/he will not sell, offer for sale, or transfer the fuel for dispensing, or dispense the fuel, into motor vehicle fuel tanks in California.
- (c) *Test Method.* Compliance with the aromatic hydrocarbon content limitations specified in this section 2282 shall be determined by ASTM D5186-96, which is incorporated herein by reference. The following correlation equation shall be used to convert the SFC results in mass percent to volume percent:
- Correlation Equation: Aromatic Hydrocarbons expressed in % by volume = $0.916 \times$
(Aromatic Hydrocarbons expressed in % by weight) + 1.33
- (d) *Designated Alternative Aromatic Hydrocarbon Limit.*
- (1) A producer or importer may assign a designated alternative limit in accordance with this subsection (d) to a final blend of vehicular diesel fuel produced or imported by the producer or importer. In no case may the designated alternative limit be less than the aromatic hydrocarbon content of the final blend shown by the sample and test conducted pursuant to subsection (f).
- (2) The producer or importer shall notify the executive officer of the volume (in gallons) and the designated alternative limit of the final blend. This notification shall be received by the executive officer before the start of physical transfer of the diesel fuel from the production or import facility, and in no case less than 12 hours before the producer either completes physical transfer or commingles the final blend.
- (3) Within 90 days before or after the start of physical transfer of any final blend of vehicular diesel fuel to which a producer or importer has assigned a designated alternative limit exceeding 10 percent, the producer or importer shall complete physical transfer from the production or import facility of vehicular diesel fuel in sufficient quantity and with a designated alternative limit

sufficiently below the limit specified in subsection (a)(1)(A) to offset the volume of aromatic hydrocarbons in the diesel fuel reported in excess of the limit.

- (4) If, through no intentional or negligent conduct, a producer or importer cannot report within the time period specified in subsection (d)(2), then the producer or importer shall notify the executive officer of the required data as soon as reasonably possible and shall provide a written explanation of the cause of the delay in reporting. If, based on the written explanation and the surrounding circumstances, the executive officer determines that the conditions of this subsection (d)(4) are met, timely notification shall be deemed to have occurred.
 - (5) The executive officer may enter into a protocol with any individual producer or importer for the purposes of specifying how the requirements in subsections (d)(2) and (3) shall be applied to the producer's or importer's particular operations, as long as the executive officer reasonably determines that application of the regulatory requirements under the protocol is not less stringent or enforceable than application of the express terms of subsections (d)(2) and (3). Any such protocol shall include the producer's or importer's agreement to be bound by the terms of the protocol.
 - (6) No person shall sell, offer for sale, or supply vehicular diesel fuel, in a final blend to which a producer or importer has assigned a designated alternative limit exceeding 10 percent aromatics content, where the total volume of the final blend sold, offered for sale, or supplied exceeds the volume reported to the executive officer pursuant to subsection (d)(2) or (5).
 - (7) No person shall sell, offer for sale or supply vehicular diesel fuel, in a final blend to which a producer or importer has assigned a designated alternative limit less than 10 percent aromatics content, where the total volume of the final blend sold, offered for sale, or supplied is less than the volume reported to the executive officer pursuant to subsection (d)(2) or (5).
 - (8) Whenever the final blend of a producer includes volumes of diesel fuel the producer has produced and volumes it has not produced, the producer's designated alternative limit shall apply only to the volume of diesel fuel the producer has produced. In such a case, the producer shall report to the ARB in accordance with subsection (d)(2) both the volume of diesel fuel produced and the total volume of the final blend.
- (e) *Small Refiner Diesel Fuel.*
- (1) The provisions of subsection (a)(1)(A), (B) and (C) shall not apply to the diesel fuel that is produced by a small refiner at the small refiner's California refinery and that is first consecutively supplied from the refinery as vehicular diesel fuel in each calendar year, up to the small refiner's exempt volume (up to one quarter of the small refiner's exempt volume for the period from October 1, 1993-December 31, 1993). Diesel fuel which is designated by the small refiner as not exempt under this section (e), and which is reported to the executive officer pursuant to a protocol entered into between the small refiner and the executive officer, shall not be counted

against the exempt volume and shall not be exempt under this subsection (e). This exemption shall not apply to any diesel fuel supplied from a small refiner's refinery in any calendar quarter in which less than 25 percent of the diesel fuel supplied from the refinery was produced from the distillation of crude oil at the refinery. The foregoing notwithstanding, in the case of any small refiner that pursuant to subsection (a)(4) has not been subject to subsection (a)(1) until October 1, 1994, all vehicular diesel fuel produced by the small refiner at the small refiner's California refinery and supplied from the refinery from October 1, 1994 through December 31, 1994, shall be exempt from the provisions of subsection (a)(1)(A), (B) and (C), up to the quarterly volume limits imposed by the executive officer in connection with issuance of suspension orders pursuant to section 2281(g). These quarterly volume limits are as follows: Kern Oil & Refining, 714,100 barrels; Paramount Petroleum, 1,064,700 barrels; and Powerine Oil Company, 1,419,600 barrels.

- (2) To qualify for an exemption under this subsection (e), a refiner shall submit to the executive officer an application for exemption executed in California under penalty of perjury, on the Air Resources Board's ARB/SSD/CPB Form 89-9-1, for each of the small refiner's California refineries. The application shall specify the crude oil capacity of the refinery at all times since January 1, 1978, the crude oil capacities of all the refineries in California and the United States which are owned or controlled by, or under common ownership or control with, the small refiner since September 1, 1988, data demonstrating that the refinery has the capacity to produce liquid fuels by distilling petroleum, and copies of the reports made to the California Energy Commission as required by the Petroleum Industry Reporting Act of 1980 (Public Resources Code sections 25350 et seq.) showing the annual production volumes of distillate fuel at the small refiner's California refinery for 1983 through 1987. Within 90 days of receipt of the application, the executive officer shall grant or deny the exemption in writing. The exemption shall be granted if the executive officer determines that the applicant has demonstrated that s/he meets the provisions of subsection (b)(19), and shall identify the small refiner's exempt volume. The exemption shall immediately cease to apply at any time the refiner ceases to meet the definition of small refiner in subsection (b)(19).
- (3) In addition to the requirements of subsection (f) below, each small refiner who is covered by an exemption shall submit to the executive officer reports containing the information set forth below for each of the small refiner's California refineries. The reports shall be executed in California under penalty of perjury, and must be received within the time indicated below:
 - (A) The quantity, ASTM grade, aromatic hydrocarbon content, and batch identification of all diesel fuel, produced by the small refiner, that is supplied from the small refinery in each month as vehicular diesel fuel, within 15 days after the end of the month;
 - (B) For each calendar quarter, a statement whether 25 percent or more of the diesel fuel transferred from the small refiner's refinery was produced by the distillation of crude oil at the small refiner's refinery, within 15 days after the close of such quarter;

- (C) The date, if any, on which the small refiner completes transfer from its small refinery in a calendar year of the maximum amount of vehicular diesel fuel which is exempt from subsection (a)(1)(A) and (B) pursuant to subsection (e), within 5 days after such date;
 - (D) Within 10 days after project completion, any refinery addition or modification which would affect the qualification of the refiner as a small refiner pursuant to subsection (b)(19); and
 - (E) Any change of ownership of the small refiner or the small refiner's refinery, within 10 days after such change of ownership.
- (4) Whenever a small refiner fails to provide records identified in subsection(e)(3)(A) or (B) in accordance with the requirements of those subsections, the vehicular diesel fuel supplied by the small refiner from the small refiner's refinery in the time period of the required records shall be presumed to have been sold or supplied by the small refiner in violation of section (a)(1)(A).
- (5) *Offsetting Excess Emissions From Gasoline Subject to the Small Refiner CaRFG Phase 3 Standards.*
- (A) *Annual elections.* No later than December 22 of each calendar year starting with 2002, a small refiner who is also a qualifying small refiner as defined in the CaRFG regulations (section 2260(a)(28.5)) may by notification to the executive officer make the following elections:
1. Whether the small refiner elects to produce gasoline subject to the small refiner CaRFG Phase 3 standards in section 2272(a) in the coming year;
 2. If electing to produce small refiner CaRFG Phase 3, whether the refiner elects the option of accepting a reduced exempt volume in the coming year to offset the excess emissions;
 3. If electing to produce small refiner CaRFG Phase 3 but not to accept a reduced exempt volume, the refiner must elect for the coming year either (i) to produce offset small refiner diesel fuel with an exempt volume determined in accordance with section (b)(4), or (ii) to produce cleaner offset small refiner diesel fuel with an exempt volume expanded by 25 percent and restrictions on sales of high-aromatics California nonvehicular diesel fuel.

(B) *Effect of election.*

1. *Election not to produce small refiner CaRFG Phase 3.* If a small refiner does not elect to produce gasoline subject to the small refiner CaRFG Phase 3 standards for a particular year, no gasoline sold or supplied from the small refiner's refinery in that year will qualify for the small refiner CaRFG Phase 3 standards in section 2272(a).
2. *Election to accept a reduced exempt volume for small refiner diesel fuel.* If a small refiner elects to accept a reduced exempt volume under section (f)(5)(A), the executive officer shall assign a substitute exempt volume for the year that is reduced sufficiently to offset the excess emissions of hydrocarbons, oxides of nitrogen, and potency-weighted toxics that would result from production of the small refiner's full qualifying volume of gasoline subject to the CaRFG Phase 3 standards. In the case of Kern Oil and Refining Co., its reduced exempt volume of small refiner diesel fuel would be 825,995 barrels per year (equal to 2263 bpd; 828,258 barrels per year in leap years) in place of 2,337,825 barrels per year (equal to 6405 bpd; 2,344,230 in leap years).
3. *Election to retain the preexisting exempt volume and produce offset small refiner diesel fuel.* If the small refiner elects to be subject to the exempt volume determined in accordance with section (b)(4), the executive officer shall adjust the aromatics and cetane number of the standards applicable to the small refiner sufficient to offset the potential increased emissions identified pursuant to section 2272(c)(5). In the case of Kern Oil and Refining Co., its exempt volume for the year would be 2,337,825 barrels per year (equal to 6405 bpd; 2,344,230 barrels per year in leap years). Any small refiner diesel fuel it sells or supplies as a certified alternative formulation equivalent to a 20 percent aromatics reference fuel must have an aromatic hydrocarbon content that is 2 percentage points lower, and a cetane number that is 0.5 higher, than is specified for the alternative formulation. Any small refiner diesel fuel it sells or supplies which is not designated as a certified alternative formulation must have an aromatic hydrocarbon content not exceeding 18 percent, or be subject to the designated alternative limit provisions in subsection (d) with all designated alternative limits above 18 percent by volume fully offset in accordance with subsection (d).
4. *Election of expanded exempt volume with requirement for cleaner offset small refiner diesel fuel.* If the small refiner elects to produce offset small refiner diesel fuel with an expanded exempt volume, its exempt volume for the year will be 125 percent of its exempt volume determined in accordance with section (b)(4). The executive officer shall adjust the aromatics and cetane number of the standards applicable to the potential volume of small refiner sufficient to offset the potential increased emissions identified pursuant to section 2272(c)(5). The small refiner will be prohibited during the year from selling or supplying diesel fuel that it has produced and is intended for nonvehicular applications in California unless the fuel meets the U.S. EPA's standards for diesel fuel for use in motor vehicles in 40 CFR sec. 80.29 as it existed July 1, 2000. In the case of

Kern Oil and Refining Co., its exempt volume for the year would be 2,922,190 barrels per year (equivalent to 8006 bpd; 2,930,196 in leap years). Any small refiner diesel fuel it sells or supplies in the year as a certified alternative formulation equivalent to a 20 percent aromatics reference fuel must have an aromatic hydrocarbon content that is 3.5 percentage points lower, and a cetane number that is 0.5 higher, and an additive content that is 0.02 percentage points higher, than is specified for the alternative formulation. Any small refiner diesel fuel it sells or supplies which is not designated as a certified alternative formulation shall have an aromatic hydrocarbon content not exceeding 14 percent.

5. *Additional requirement to sell or supply ultra-low sulfur diesel fuel.* In addition to the requirements in section (f)(5)(B)1. through (f)(5)(B)4., a small refiner that elects to produce gasoline subject to the CaRFG Phase 3 standards for a year must sell or supply in that year up to 100 bpd of diesel fuel having a sulfur content not exceeding 30 ppm and an aromatic hydrocarbon content not exceeding 20 percent, to the extent there are buyers wishing to acquire that diesel fuel on commercially reasonable terms.

(C) *Early opt-in to produce small refiner CaRFG Phase 3.* To the extent that the sale or supply of gasoline subject to the CaRFG Phase 3 standards before December 31, 2002 is permitted by section 2261(b)(3), a qualifying small refiner may elect to have to option of producing gasoline subject to the small refiner CaRFG Phase 3 standards for a full year or the remainder of a year prior to December 31, 2002. In that case, section (e)(5)(B)2.-5. would apply on a pro rata basis to the portion of the year on and after the effective date of the election, and the preexisting requirements would apply on a pro rata basis to the portion of the year prior to the effective date of the election.

(f) *Testing and Recordkeeping.*

- (1) Each producer shall sample and test for aromatic hydrocarbon content each final blend of vehicular diesel fuel which the producer has produced, in accordance with an applicable test method identified in subsection (c). If a producer blends diesel fuel components directly to pipelines, tankships, railway tankcars or trucks and trailers, the loading(s) shall be sampled and tested for aromatic hydrocarbon content by the producer or authorized contractor. The producer shall maintain, for two years from the date of each sampling, records showing the sample date, product sampled, container or other vessel sampled, final blend volume, and the aromatic hydrocarbon content. In the event a producer sells, offers for sale, or supplies diesel fuel which the producer claims is not vehicular diesel fuel and which has an aromatic hydrocarbon content exceeding the standard set forth in subsection (a)(1), such producer shall maintain, for two years from the date of any sale or supply of the fuel, records demonstrating that the diesel fuel was not vehicular diesel fuel when it was sold or supplied by the producer. All diesel fuel produced by the producer and not tested as vehicular diesel fuel by the producer pursuant to this subsection shall be deemed to have an aromatic hydrocarbon content exceeding

10 percent, unless the producer demonstrates that the diesel fuel meets the requirements of subsection (a)(1).

- (2) Each importer shall sample and test for aromatic hydrocarbon content each shipment of vehicular diesel fuel which the importer has imported by tankship, pipeline, railway tankcars, trucks and trailers, or other means, in accordance with an applicable test method identified in subsection (c). The importer shall maintain, for two years from the date of each sampling, records showing the sample date, product sampled, container or other vessel sampled, the volume of the shipment, and the aromatic hydrocarbon content. All diesel fuel imported by the importer and not tested as vehicular diesel fuel by the importer pursuant to this subsection shall be deemed to have an aromatic hydrocarbon content exceeding 10 percent, unless the importer demonstrates that the diesel fuel meets the requirements of subsection (a)(1).
- (3) A producer or importer shall provide to the executive officer any records required to be maintained by the producer or importer pursuant to this subsection (d) within 20 days of a written request from the executive officer if the request is received before expiration of the period during which the records are required to be maintained. Whenever a producer or importer fails to provide records regarding a final blend of vehicular diesel fuel in accordance with the requirements of this subsection, the final blend of diesel fuel shall be presumed to have been sold by the producer in violation of subsection (a)(1).
- (4) The executive officer may perform any sampling and testing deemed necessary to determine compliance by any person with the requirements of subsection (a) and may require that special samples be drawn and tested at any time.
- (5) The executive officer may enter into a protocol with any producer, importer, or person who sells, offers for sale, or transfers diesel fuel to a producer for the purpose of specifying alternative sampling, testing, recordkeeping, or reporting requirements which shall satisfy the provisions of subsections (f)(1), (f)(2), or (e)(3). The executive officer may only enter into such a protocol if s/he reasonably determines that application of the regulatory requirements under the protocol will be consistent with the state board's ability effectively to enforce the provisions of subsection (a). Any such protocol shall include the producer's or importer's agreement to be bound by the terms of the protocol.

(g) *Certified Diesel Fuel Formulations Resulting in Equivalent Emissions Reductions.*

- (1) The executive officer, upon application of any producer or importer, may certify diesel fuel formulations in accordance with this subsection (g). The applicant shall initially submit a proposed test protocol to the executive officer. The proposed test protocol shall include: (A) the identity of the entity proposed to conduct the tests described in subsection (g)(4); (B) test procedures consistent with the requirements of this subsection (g); (C) test data showing that the candidate fuel meets the specifications for No. 2-D diesel fuel set forth in ASTM D975-81 (which is incorporated herein by reference), and identifying the characteristics of the candidate

fuel set forth in subsection (g)(2); (D) test data showing that the fuel to be used as the reference fuel satisfies the specifications identified in subsection (g)(3); (E) reasonably adequate quality assurance and quality control procedures; and (F) notification of any outlier identification and exclusion procedure that will be used, and a demonstration that any such procedure meets generally accepted statistical principles.

Within 20 days of receipt of a proposed test protocol, the executive officer shall advise the applicant in writing either that it is complete or that specified additional information is required to make it complete. Within 15 days of submittal of additional information, the executive officer shall advise the applicant in writing either that the information submitted makes the proposed test protocol complete or that specified additional information is still required to make it complete. Within 20 days after the proposed test protocol is deemed complete, the executive officer shall either approve the test protocol as consistent with this subsection (g) or advise the applicant in writing of the changes necessary to make the test protocol consistent with this subsection (g). Any notification of approval of the test protocol shall include the name, telephone number, and address of the executive officer's designee to receive notifications pursuant to subsection (g)(4)(C)(ii). The tests shall not be conducted until the protocol is approved by the executive officer.

Upon completion of the tests, the applicant may submit an application for certification to the executive officer. The application shall include the approved test protocol, all of the test data, a copy of the complete test log prepared in accordance with subsection (g)(4)(C)(ii), a demonstration that the candidate fuel meets the requirements for certification set forth in this subsection (g), and such other information as the executive officer may reasonably require.

Within 20 days of receipt of an application, the executive officer shall advise the applicant in writing either that it is complete or that specified additional information is required to make it complete. Within 15 days of submittal of additional information, the executive officer shall advise the applicant in writing either that the information submitted makes the application complete or that specified additional information is still required to make it complete. Within 30 days after the application is deemed complete, the executive officer shall grant or deny the application. Any denial shall be accompanied by a written statement of the reasons for denial.

(2) The candidate fuel.

(A)1. The applicant shall supply the candidate fuel to be used in the comparative testing pursuant to subsection (g)(4).

2. The candidate fuel shall meet the specifications for No. 2-D diesel fuel set forth in ASTM D975-81, which is incorporated herein by reference, and shall also meet the requirements in subsections (g)(2)(A)3. and 4.

- 3.a. Except as otherwise provided in subsection (g)(2)(A)3.b., the candidate fuel shall meet the following specifications, which are identical to the comparable specifications for the reference fuel identified in subsection (g)(3):

<i>Property</i>	<i>ASTM Test Method</i>	<i>Candidate Fuel Specifications</i>
Gravity, API	D287-82	33 - 39
Viscosity at 40°C, cSt	D445-83	2.0 - 4.1
Flash point, °F, (min.)	D93-80	130
Distillation, °F	D86-96	
IBP		340 - 420
10% REC.		400 - 490
50% REC.		470 - 560
90% REC.		550 - 610
EP		580 - 660

- b. The candidate fuel's value for one or more of the properties listed in the subsection (g)(2)(A)3.a. table may be outside the specification in the table if the applicant is specifying the property and candidate fuel's value pursuant to subsection (g)(2)(C).

4. a. Except for a property to which subsection (g)(2)(A)3.b applies, the gravity, viscosity, flash point and distillation values of the candidate fuel may not differ from the corresponding values of the reference fuel used in the engine emissions testing by more than one-half of the permitted range for the property. For example, if the API gravity of the reference fuel is 33, then the API gravity of the candidate fuel may not exceed 36.

- b. The candidate fuel's value for one or more of the properties listed in the subsection (g)(2)(A)3.a. table may differ from the corresponding value of the reference fuel used in the engine emissions testing by more than one-half of the permitted range for the property if the applicant is specifying the property and candidate fuel's value pursuant to subsection (g)(2)(C).

(B) The following characteristics of the candidate fuel shall be determined as the average of three tests conducted in accordance with the referenced test method (the ASTM methods are incorporated herein by reference):

1. a. For formulations certified prior to August 14, 2004, sulfur content (not to exceed 500 ppm) by ASTM D2622-94;
- b. For formulations certified on or after August 14, 2004, sulfur content (not to exceed 15 ppm) by ASTM D5453-93;

2. Total aromatic hydrocarbon content, by ASTM D5186-96;
3. Polycyclic aromatic hydrocarbon content, by ASTM D5186-96;
4. Nitrogen content, by ASTM D4629-96;
5. Cetane number, by ASTM D613-84;
6. Identity and concentration of each additive, by a test method specified by the applicant and determined by the executive officer to adequately determine the presence and concentration of the additive.

(C) The applicant may also specify any other parameters for the candidate fuel in addition to those listed in subsection (g)(2)(B), along with the test method for determining the parameters. The applicant shall provide the chemical composition of each additive in the candidate fuel, except that if the chemical composition of an additive is not known to either the applicant or to the manufacturer of the additive (if other), the applicant may provide a full disclosure of the chemical process of manufacture of the additive in lieu of its chemical composition.

(3) *The reference fuel.*

- (A) The reference fuel used in the comparative testing described in subsection (g)(4) shall be produced from straight-run California diesel fuel by a hydrodearomatization process and shall have the characteristics set forth below under "General Reference Fuel Specifications" (the listed ASTM methods are incorporated herein by reference):

Reference Fuel Specifications

<i>Property</i>	<i>ASTM Test Method</i>	<i>General Reference Fuel Specifications</i>	<i>Small Refiner Reference Fuel Specifications</i>
Sulfur Content	D2622-94 ¹ D5453-93 ²	500 ppm max. ¹ 15 ppm max. ²	500 ppm max. ¹ 15 ppm max. ²
Aromatic Hydrocarbon Content, Vol. %	D5186-96	10% max.	20% max.
Polycyclic Aromatic Hydrocarbon content, Wt. %	D5186-96	1.4% max.	4% max.
Nitrogen Content	D4629-96	10 ppm max.	90 ppm max.
Natural Cetane Number	D613-84	48 minimum	47 minimum
Gravity, API	D287-82	33 - 39	33 - 39
Viscosity at 40°C, cSt	D445-83	2.0 - 4.1	2.0 - 4.1
Flash point, °F, (min.)	D93-80	130	130
Distillation, °F	D86-96		
IBP		340 - 420	340 - 420
10% REC.		400 - 490	400 - 490
50% REC.		470 - 560	470 - 560
90% REC.		550 - 610	550 - 610
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¹ This test method and sulfur content maximum applies to all reference fuels used for formulations certified prior to August 14, 2004.

² This test method and sulfur content maximum applies to all reference fuels used for formulations certified on or after August 14, 2004.

(B) Where the candidate fuel's value for one or more properties is outside the specification in the table in subsection (g)(2)(A)3.a as permitted by subsection (g)(2)(A)3.b., the reference fuel's value for that property may not be on the opposite side of the mid-point of the range shown in the table.

- (4) (A) Exhaust emission tests using the candidate fuel and the reference fuel shall be conducted in accordance with the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel-Powered Engines and Vehicles," as incorporated by reference in Title 13, California Code of Regulations, Section 1956.8(b). The tests shall be performed using a Detroit Diesel Corporation Series-60 engine, or, if the executive officer determines that the Series-60 is no longer representative of the post-1990

model year heavy-duty diesel engine fleet, another engine found by the executive officer to be representative of such engines. A determination by the executive officer that an engine is no longer representative shall not affect the certification of a diesel fuel formulation based on prior tests using that engine pursuant to a protocol approved by the executive officer.

(B) The comparative testing shall be conducted by a party or parties that are mutually agreed upon by the executive officer and the applicant. The applicant shall be responsible for all costs of the comparative testing.

(C)1. The applicant shall use one of the following test sequences:

- a. If both cold start and hot start exhaust emission tests are conducted, a minimum of five exhaust emission tests shall be performed on the engine with each fuel, using either of the following sequences, where "R" is the reference fuel and "C" is the candidate fuel: RC RC RC RC RC (and continuing in the same order). or RC CR RC CR RC (and continuing in the same order).

The engine mapping procedures and a conditioning transient cycle shall be conducted with the reference fuel before each cold start procedure using the reference fuel. The reference cycle used for the candidate fuel shall be the same cycle as that used for the fuel preceding it.

- b. If only hot start exhaust emission tests are conducted, one of the following test sequences shall be used throughout the testing, where "R" is the reference fuel and "C" is the candidate fuel:

Alternative 1: RC CR RC CR (continuing in the same order for a given calendar day; a minimum of twenty individual exhaust emission tests must be completed with each fuel)

Alternative 2: RR CC RR CC (continuing in the same order for a given calendar day; a minimum of twenty individual exhaust emission tests must be completed with each fuel)

Alternative 3: RRR CCC RRR CCC (continuing in the same order for a given calendar day; a minimum of twenty-one individual exhaust emission tests must be completed with each fuel)

For all alternatives, an equal number of tests shall be conducted using the reference fuel and the candidate fuel on any given calendar day. At the beginning of each calendar day, the sequence of testing shall begin with the fuel that was tested at the end of the preceding day. The engine mapping procedures and a conditioning transient cycle shall be conducted after every fuel change and/or at

the beginning of each day. The reference cycle generated from the reference fuel for the first test shall be used for all subsequent tests.

For alternatives 2 and 3, each paired or triplicate series of individual tests shall be averaged to obtain a single value which would be used in the calculations conducted pursuant to section (g)(5)(C).

2. The applicant shall submit a test schedule to the executive officer at least one week prior to commencement of the tests. The test schedule shall identify the days on which the tests will be conducted, and shall provide for conducting the test consecutively without substantial interruptions other than those resulting from the normal hours of operations at the test facility. The executive officer shall be permitted to observe any tests. The party conducting the testing shall maintain a test log which identifies all tests conducted, all engine mapping procedures, all physical modifications to or operational tests of the engine, all recalibrations or other changes to the test instruments, and all interruptions between tests and the reason for each such interruption. The party conducting the tests or the applicant shall notify the executive officer by telephone and in writing of any unscheduled interruption resulting in a test delay of 48 hours or more, and of the reason for such delay. Prior to restarting the test, the applicant or person conducting the tests shall provide the executive officer with a revised schedule for the remaining tests. All tests conducted in accordance with the test schedule, other than any tests rejected in accordance with an outlier identification and exclusion procedure included in the approved test protocol, shall be included in the comparison of emissions pursuant to subsection (g)(5).

(D) In each test of a fuel, exhaust emissions of oxides of nitrogen (NO_x) and particulate matter (PM) shall be measured. In addition, for each test the soluble organic fraction (SOF) of the particulate matter in the exhaust emissions shall be determined in accordance with the Air Resources Board's "Test Method for Soluble Organic Fraction (SOF) Extraction" dated April 1989, which is incorporated herein by reference.

(5) The average emissions during testing with the candidate fuel shall be compared to the average emissions during testing with the reference fuel, applying one-sided Student's t statistics as set forth in Snedecar and Cochran, *Statistical Methods* (7th ed.), page 91, Iowa State University Press, 1980, which is incorporated herein by reference. The executive officer shall issue a certification pursuant to this paragraph only if he or she makes all of the determinations set forth in subsections (g)(5)(A) and (B) below, after applying the criteria in subsection (g)(5)(C).

(A) The average individual emissions of NO_x, PM, and SOF, respectively, during testing with the candidate fuel do not exceed the average individual emissions of NO_x, PM, and SOF, respectively, during testing with the reference fuel.

(B) Use of any additive identified pursuant to subsection (g)(2)(B)6. in heavy-duty engines will not increase emissions of noxious or toxic substances which would not be emitted by such engines operating without the additive.

(C) In order for the determinations in subsection (g)(5)(A) to be made, for each referenced pollutant the candidate fuel shall satisfy the following relationship:

$$\bar{x}_C < \bar{x}_R + \delta - S_p \sqrt{\frac{2}{n}} t(a, 2n-2)$$

Where: \bar{x}_C = Average emissions during testing with the candidate fuel

\bar{x}_R = Average emissions during testing with the reference fuel

δ = tolerance level equal to 1 percent of \bar{x}_R NOx, 2 percent of \bar{x}_R for PM, and 6 percent of \bar{x}_R for SOF.

S_p = Pooled standard deviation

$t(a, 2n-2)$ = The one-sided upper percentage point of t distribution with $a = 0.15$ and $2n-2$ degrees of freedom

n = Number of tests of candidate and reference fuel

(6) If the executive officer finds that a candidate fuel has been properly tested in accordance with this subsection (g), and makes the determinations specified in subsection (g)(5), then he or she shall issue an Executive Order certifying the diesel fuel formulation represented by the candidate fuel. The Executive Order shall identify all of the characteristics of the candidate fuel determined pursuant to subsection (g)(2). The Executive Order shall provide that the certified diesel fuel formulation has the following specifications: [1] a sulfur content, total aromatic hydrocarbon content, polycyclic aromatic hydrocarbon content, and nitrogen content not exceeding that of the candidate fuel, [2] a cetane number not less than that of the candidate fuel, [3] any additional fuel specification required under subsection (g)(2)(A)3.b, and [4] presence of all additives that were contained in the candidate fuel, in a concentration not less than in the candidate fuel, except for an additive demonstrated by the applicant to have the sole effect of increasing cetane number. All such characteristics shall be determined in accordance with the test methods identified in subsection (g)(2). The Executive Order shall assign an identification name to the specific certified diesel fuel formulation.

(7) In order for a producer or importer of a final blend to comply with subsection (a) through the sale, offer for sale or supply of a certified diesel fuel formulation, the producer or importer shall notify the executive officer in accordance with this subsection (g)(7). The notification shall identify the final blend and the identification name of the certified diesel fuel formulation. The

notification shall be received by the executive officer at least 12 hours before start of physical transfer of the final blend from the production or import facility. A producer or importer intending to have a series of its final blends be a specific certified formulation may enter into a protocol with the executive officer for reporting such blends as long as the executive officer reasonably determines the reporting under the protocol would provide at least as much notice to the executive officer as notification pursuant to the express terms of this subsection (g)(7).

- (8) A small refiner may apply for certification of a diesel fuel formulation to be sold pursuant to subsection (a)(1)(C). All of the provisions of this subsection (g) shall apply to certification of such a diesel fuel formulation, except the reference fuel in the comparative testing described in subsection (g)(4) shall have the characteristics set forth under "Small Refiner Reference Fuel Specifications" in the table in subsection (g)(3).
- (9) (A) If the executive officer determines that a commercially available diesel fuel blend meets all of the specifications of a certified diesel fuel formulation set forth in an Executive Order issued pursuant to subsection (g)(6), but does not meet the criteria in subsection (g)(5) when tested in accordance with subsection (g)(4), the executive officer shall modify the certification order as is necessary to assure that diesel fuel blends sold commercially pursuant to the certification will meet the criteria set forth in subsection (g)(5). The modifications to the order may include additional specifications or conditions, or a provision making the order inapplicable to diesel fuel produced by the producer of the commercially available diesel fuel blend found not to meet the criteria.

(B) The executive officer shall not modify a prior certification order without the consent of the applicant and of the producer of the commercially available diesel fuel blend found not to meet the criteria, unless the applicant and producer are first afforded an opportunity for a hearing in accordance with Title 17, California Code of Regulations, Part III, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040). If the executive officer determines that a producer would be unable to comply with this regulation as a direct result of an order modification pursuant to this subsection, the executive officer may delay the effective date of such modification for such period of time as is necessary to permit the producer to come into compliance in the exercise of all reasonable diligence.
- (10) Any diesel fuel formulation certified in accordance with this subsection (g) as it existed before the amendments effective 12/26/91 shall no longer be considered certified after 12/26/91 unless the executive officer determines that the test data submitted with the application demonstrates that the diesel fuel formulation satisfies the criteria for certification in subsection (g) as amended effective 12/26/91.

(h) *Designated Equivalent Limits.*

- (1) *Designated equivalent limits.* The designated equivalent limits under this section 2282 are set forth in the following table. Compliance with the limits for the properties shall be determined by the specified ASTM methods, which are incorporated herein by reference.

<i>Property</i>	<i>Equivalent Limit</i>	<i>Test Method</i>
Aromatic Hydrocarbon Content (% by wt.)	≤ 21.0	ASTM D5186-96
PAH Content (% by wt.)	≤ 3.5	ASTM D5186-96
API Gravity	≥ 36.9	ASTM D287-82
Cetane Number	≥ 53	ASTM D613-84
Nitrogen Content (ppmw)	≤ 500	ASTM D4629-96
Sulfur Content (ppmw)	≤ 160 before 6/1/06 ≤ 15 starting 6/1/06	ASTM D2262-94 before 6/1/06 ASTM D5453-93 starting 6/1/06

- (2) *Notification requirements.* In order for a producer or importer of a final blend to comply with subsection (a) through the sale, offer for sale or supply of diesel fuel subject to all of the designated equivalent limits in subsection (h)(1), the producer or importer shall notify the executive officer in accordance with this subsection (h)(2). The notification shall identify the final blend subject to the designated equivalent limits and must be received by the executive officer at least 12 hours before start of physical transfer of the final blend from the production or import facility. A producer or importer intending to have a series of its final blends be subject to the designated equivalent limits may enter into a protocol with the executive officer for reporting such blends as long as the executive officer reasonably determines the reporting under the protocol would provide at least as much notice to the executive officer as notification pursuant to the express terms of this subsection (h)(2).

(i) *Variances.*

- (1) Any person who cannot comply with the requirements set forth in subsection (a)(1) because of reasons beyond the person's reasonable control may apply to the executive officer for a variance. The application shall set forth:
- (A) the specific grounds upon which the variance is sought;
 - (B) the proposed date(s) by which compliance with the provisions of subsection (a)(1) will be achieved; and
 - (C) a plan reasonably detailing the method by which compliance will be achieved.

- (2) Upon receipt of an application for a variance containing the information required in subsection (i)(1), the executive officer shall hold a hearing to determine whether, or under what conditions and to what extent, a variance from the requirements in subsection (a)(1) is necessary and will be permitted. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 20 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Regulatory Notice Register and sent to every person who requests such notice, not less than 20 days prior to the hearing.
- (3) At least 20 days prior to the hearing, the application for the variance shall be made available to the public for inspection. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.
- (4) No variance shall be granted unless all of the following findings are made:
 - (A) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with subsection (a)(1) would result in an extraordinary economic hardship;
 - (B) that the public interest in mitigating the extraordinary hardship to the applicant by issuing the variance outweighs the public interest in avoiding any increased emissions of air contaminants which would result from issuing the variance.
 - (C) that the compliance plan proposed by the applicant can reasonably be implemented and will achieve compliance as expeditiously as possible.
- (5) Any variance order shall specify a final compliance date by which the requirements in subsection (a)(1) will be achieved. Any variance order shall also contain a condition that specified increments of progress necessary to assure timely compliance be achieved, and such other conditions, including limitations on the aromatic hydrocarbon content of diesel fuel produced for use in motor vehicles, that the executive officer, as a result of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.
- (6) The executive officer may require, as a condition of granting a variance, that a cash bond, or a bond executed by two or more good and sufficient sureties or by a corporate surety, be posted by the party to whom the variance was granted to assure performance of any construction, alteration, repair, or other work required by the terms and conditions of the variance. Such bond may provide that, if the party granted the variance fails to perform such work by the agreed date, the cash bond shall be forfeited to the state board, or the corporate surety or sureties shall have the option of promptly remedying the variance default or paying to the state board an amount, up to the amount specified in the bond, that is necessary to accomplish the work specified as a condition of the variance.
- (7) [Reserved]