

CALIFORNIA CODE OF REGULATIONS

Title 17. Public Health

Division 3. Air Resources

Chapter 1. Air Resources Board

Subchapter 7.5 Airborne Toxic Control Measures

§ 93114. Airborne Toxic Control Measure to Reduce Particulate Emissions from Diesel-Fueled Engines – Standards for Nonvehicular Diesel Fuel.

(a) *Effective Date.*

(1) No later than December 12, 2004, each air pollution control and air quality management district must:

(A) Implement and enforce the requirements of this section; or

(B) Propose its own airborne toxic control measure to reduce particulate emissions from diesel-fueled engines through standards for nonvehicular diesel fuel as provided in Health and Safety Code section 39666(d).

(b) *Requirements.* California nonvehicular diesel fuel is subject to all of the requirements of sections 2281 (sulfur content), 2282 (aromatic hydrocarbons content) and 2284 (lubricity) applicable to vehicular diesel fuel, and shall be treated under those sections as if it were vehicular diesel fuel; provided that these requirements do not apply to California diesel fuel offered, sold, or supplied solely for use in locomotives or marine vessels.

(c) *Definitions.*

(1) "California nonvehicular diesel fuel" means any diesel fuel that is not vehicular diesel fuel as defined respectively in sections 2281(b), 2282(b), or 2284(b) and that is sold or made available for use in engines in California.

(2) "Diesel fuel" means any fuel that is commonly or commercially known, sold or represented as diesel fuel, including any mixture of primarily liquid hydrocarbons that is sold or represented as suitable for use in an internal combustion, compression-ignition engine.

(3) "Marine vessel" has the meaning set forth in section 39037.1 of the Health and Safety Code.

Note: Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, and 41311, Health and Safety Code. Reference: Sections 39650, 39658, 39659, 39666, and 41511, Health and Safety Code.

FINAL REGULATION ORDER

AIRBORNE TOXIC CONTROL MEASURE FOR DIESEL PARTICULATE MATTER FROM PORTABLE ENGINES RATED AT 50 HORSEPOWER AND GREATER

Adopt new Sections 93116, 93116.1, 93116.2, 93116.3, 93116.4, and 93116.5, Title 17, California Code of Regulations, to read as follows:

Airborne Toxic Control Measure For Diesel Particulate Matter From Portable Engines Rated At 50 Horsepower and Greater

93116 PURPOSE

The purpose of this airborne toxic control measure (ATCM) is to reduce diesel particulate matter (PM) emissions from portable diesel-fueled engines having a rated brake horsepower of 50 and greater (≥ 50 bhp).

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

93116.1 APPLICABILITY

- (a) Except as provided below, all portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel are subject to this regulation.
- (b) The following portable engines are not subject to this regulation:
 - (1) Any engine used to propel mobile equipment or a motor vehicle of any kind;
 - (2) Any portable engine using an alternative fuel;
 - (3) Dual-fuel diesel pilot engines that use an alternative fuel or an alternative diesel fuel;
 - (4) Tactical support equipment;
 - (5) Portable diesel-fueled engines operated on either San Clemente or San Nicolas Island;

- (6) Engines preempted from State regulation under 42 USC §7543(e)(1); and
- (7) Portable diesel-fueled engines operated at airports that satisfies the following requirements:
 - (A) the equipment is subject to the South Coast Ground Service Equipment Memorandum of Understanding (MOU); and
 - (B) the participating airlines have demonstrated to the satisfaction of the Executive Officer that the diesel PM reductions achieved by satisfying the requirements of the MOU are equivalent to the reductions achieved by this control measure.

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

93116.2 DEFINITIONS

- (a) **Air Pollution Control Officer or APCO** means the air pollution control officer of a district, or his/her designee.
- (b) **Alternative Fuel** means gasoline, natural gas, propane, liquid petroleum gas (LPG), hydrogen, ethanol, or methanol.
- (c) **Alternative Diesel Fuel** means any fuel used in a compression ignition (CI) engine that is not, commonly or commercially known, sold or represented by the supplier as diesel fuel No. 1-D or No. 2-D, pursuant to the specifications in ASTM Standard Specification for Diesel Fuel Oils D975-81, or an alternative fuel, and does not require engine or fuel system modifications for the engine to operate, although minor modifications (e.g., recalibration of the engine fuel control) may enhance performance. An emission control strategy using a fuel additive will be treated as an alternative diesel fuel based strategy unless:
 - (1) the additive is supplied to the engine fuel by an on-board dosing mechanism, or
 - (2) the additive is directly mixed into the base fuel inside the fuel tank of the engine, or

- (3) the additive and base fuel are not mixed until engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine.
- (d) **CARB Diesel Fuel** means any diesel fuel that is commonly or commercially known, sold, or represented by the supplier as diesel fuel No. 1-D or No. 2-D, pursuant to the specification for Diesel Fuel Oils D975-81, and that meets the specifications defined in *Title 13 CCR, sections 2281, 2282, and 2284*.
- (e) **Certified Nonroad Engine** refers to an engine meeting an applicable nonroad engine emission standard as set forth in Title 13 of the California Code of Regulations or CFR 40 Part 89.
- (f) **Diesel Fuel** means any fuel that is commonly or commercially known, sold, or represented by the supplier 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 engine.
- (g) **Diesel-Fueled** means fueled by diesel fuel, or CARB diesel fuel, in whole or part.
- (h) **Diesel Particulate Matter (PM)** means the particles found in the exhaust of diesel-fueled engines which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (i) **District** means a District as defined in Health and Safety Code section 39025.
- (j) **Dual-fuel Diesel Pilot Engine** means a dual-fueled engine that uses diesel fuel as a pilot ignition source at an annual average ratio of less than 5 parts diesel fuel to 100 parts total fuel on an energy equivalent basis.
- (k) **Emergency** means providing electrical power or mechanical work during any of the following events and subject to the following conditions:
 - (1) the failure or loss of all or part of normal electrical power service or normal natural gas supply to the facility:
 - (A) which is caused by any reason other than the enforcement of a contractual obligation the owner or operator has with a third party or any other party; and

- (B) which is demonstrated by the owner or operator to the district APCO's satisfaction to have been beyond the reasonable control of the owner or operator;
- (2) the failure of a facility's internal power distribution system:
 - (A) which is caused by any reason other than the enforcement of a contractual obligation the owner or operator has with a third party or any other party; and
 - (B) which is demonstrated by the owner or operator to the district APCO's satisfaction to have been beyond the reasonable control of the owner or operator;
- (3) the pumping of water or sewage to prevent or mitigate a flood or sewage overflow;
- (4) the pumping of water for fire suppression or protection;
- (5) the pumping of water to maintain pressure in the water distribution system for the following reasons:
 - (A) pipe break; or
 - (B) high demand on water supply system due to high use of water for fire suppression;
- (6) the breakdown of electric-powered pumping equipment at sewage treatment facilities or water delivery facilities;
- (7) the training of personnel in the use of portable equipment for emergency purposes.
- (l) **Emergency Event** refers to a situation arising from a sudden and reasonably unforeseen natural disaster such as an earthquake, flood, fire, or other acts of God, or other unforeseen event that requires the use of portable engines to help alleviate the threat to public health and safety.
- (m) **Engine** means any piston-driven internal combustion engine.
- (n) **Engines Used Exclusively in Emergency Applications** refer to engines that are used only during an emergency or emergency event, and includes appropriate maintenance and testing.
- (o) **Executive Officer** means the Executive Officer of the California Air Resources Board (CARB) or his/her designee.

- (p) **Fleet** refers to a portable engine or group of portable engines that are owned and managed by an individual operational entity, such as a business, business unit within a corporation, or individual city or state department under the control of a Responsible Official. Engines that are owned by different business entities that are under the common control of only one Responsible Official shall be treated as a single fleet.
- (q) **Fuel Additive** means any substance designed to be added to fuel or fuel systems or other engine-related systems such that it is present in-cylinder during combustion and has any of the following effects: decreased emissions, improved fuel economy, increased performance of the engine; or assists diesel emission control strategies in decreasing emissions, or improving fuel economy or increasing performance of the engine. Fuel additives used in conjunction with diesel fuel may be treated as an alternative diesel fuel.
- (r) **In-Use Engines** refers to portable diesel-fueled engines operating under valid permits or registrations as of December 31, 2005.
- (s) **Level-3 Verified Technology** means a technology that has satisfied the requirements of the "Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines" in Title 13, California Code of Regulations, commencing with section 2700, and has demonstrated an reduction in diesel particulate matter of 85% or greater.
- (t) **Location** means any single site at a building, structure, facility, or installation.
- (u) **Low-Use Engines** refers to portable diesel-fueled engines that operate 80 hours or less in a calendar year.
- (v) **Maximum Rated Horsepower (brake horsepower (bhp))** is the maximum brake horsepower rating specified by the portable engine manufacturer and listed on the nameplate of the portable engine.
- (w) **Nonroad Engine** means:
 - (1) Except as discussed in paragraph (2) of this definition, a nonroad engine is any engine:
 - (A) in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or

- (B) in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or
 - (C) that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.
- (2) An engine is not a nonroad engine if:
 - (A) the engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the federal Clean Air Act; or
 - (B) the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the federal Clean Air Act; or
 - (C) the engine otherwise included in paragraph (1)(C) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. Any engine(s) that replace(s) an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location approximately three (or more) months each year.
- (x) **Off-Road Engine** means the same as nonroad engine.
- (y) **Outer Continental Shelf (OCS)** shall have the meaning provided by section 2 of the Outer Continental Shelf Lands Act (43 USC Section 1331 et seq.).
- (z) **Participating Airlines** means the collective group of Individual Participating Airlines under the MOU, which currently is as follows: ABX Air, Inc. (formerly Airborne Express), Alaska Airlines, America West Airlines, American Airlines, ATA Airlines (formerly American Trans Air), Continental Airlines, Delta Air Lines, Astar Air Cargo (formerly DHL Airways), Federal Express, Hawaiian Airlines, Jet Blue Airways Corp.,

Midwest Airlines (formerly Midwest Express Airlines), Northwest Airlines, Southwest Airlines, United Airlines, United Parcel Service, and US Airways. Participating Airlines does not mean the Air Transportation Association of America, Inc.

(aa) Permit refers to a certificate issued by the Air Pollution Control Officer acknowledging expected compliance with the applicable requirements of the district's rules and regulations.

(bb) Portable means designed and capable of being carried or moved from one location to another. Indicia of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine is not portable if:

- (1) the engine or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination. Any engine, such as a back-up or stand-by engine, that replace engine(s) at a location, and is intended to perform the same or similar function as the engine(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; or
- (2) the engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or
- (3) the engine is moved from one location to another in an attempt to circumvent the portable residence time requirements.

(cc) Project means the use of one or more registered or permitted portable engines or equipment units operated under the same or common ownership or control to perform a single activity.

(dd) Registration refers to either:

- (1) a certificate issued by the Executive Officer acknowledging expected compliance with the applicable requirements of the Statewide Portable Equipment Registration Program; or

- (2) a certificate issued by the Air Pollution Control Officer acknowledging expected compliance with the applicable requirements of the district's Portable Equipment Registration Program.
- (ee) **Responsible Official** refers to an individual employed by the company or public agency with the authority to certify that the portable engines under his/her jurisdiction complies with applicable requirements of this regulation. A company or public agency may have more than one Responsible Official. A contracted designee cannot certify compliance in lieu of the Responsible Official.
- (ff) **Selective Catalytic Reduction (SCR) System** refers to an air pollution emissions control system that reduces oxides of nitrogen (NOx) emissions through the catalytic reduction of NOx by injecting nitrogen-containing compounds into the exhaust stream, such as ammonia or urea.
- (gg) **Stationary Source** means any building, structure, facility or installation that emits any air contaminant directly or as a fugitive emission. Building, structure, facility, or installation includes all pollutant emitting activities which:
- (1) are under the same ownership or operation, or which are owned or operated by entities which are under common control; and
 - (2) belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and
 - (3) are located on one or more contiguous or adjacent properties.
- [Note: For the purposes of this regulation a stationary source and nonroad engine are mutually exclusive.]
- (hh) **Storage** means a warehouse, enclosed yard, or other area established for the primary purpose of maintaining portable engines when not in operation.
- (ii) **Tactical Support Equipment (TSE)** means equipment using a portable engine, including turbines, that meets military specifications, owned by the U.S. Department of Defense and/or the U.S. military services or its allies, and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations. Examples include, but are not limited to, engines associated with portable generators, aircraft start carts, heaters and lighting carts.

(jj) **Tier 4 Emission Standards** refers to the final emission standards adopted by the U.S. EPA for newly manufactured nonroad engines.

(kk) **Transportable** means the same as portable.

(ll) **Verified Emission Control Strategy** refers to an emission control strategy, designed primarily for the reduction of diesel PM emissions which has been verified pursuant to the "Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines" in Title 13, California Code of Regulations, commencing with section 2700, and incorporated by reference.

(mm) **U.S. EPA** refers to the United States Environmental Protection Agency.

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

93116.3 REQUIREMENTS

~~(a) Diesel fueled portable engines shall only use one of the following fuels:~~

- ~~(1) CARB diesel fuel; or~~
- ~~(2) alternative diesel fuel that has been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines; or~~
- ~~(3) CARB diesel fuel utilizing fuel additives that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.~~

~~[Note that credit for diesel PM reductions for diesel fuel or CARB diesel fuel blends that use an alternative diesel fuel such as biodiesel, Fischer-Tropsch fuels, or emulsions of water in diesel fuel is available only for fuel blends that been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines. The credit granted is based upon the verified level approved by the Executive Officer within the Executive Order for the fuel blend.]~~

(b) Diesel PM Standards

(1) Requirements for in-use portable diesel-fueled engines

- (A) Except as provided in sections 93116.3(b)(1)(B) and 93116.3 (b)(4), starting January 1, 2010, all portable diesel-fueled engines shall be certified to meet a federal or California standard for newly manufactured nonroad engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations (that is, certified to Tier 1, 2 or 3 nonroad engine standards).¹
- (B) In lieu of complying with (b)(1)(A), owners of portable diesel-fueled engines used exclusively in emergency applications or portable diesel-fueled engines that qualify as low-use engines may commit to replacing these engines with Tier 4 engines, subject to the requirements below:
 - 1. the Responsible Official shall submit written notification identifying the specific portable diesel-fueled engines to be replaced with portable diesel-fueled engines certified to the Tier 4 emission standards; and
 - 2. for each class and category of nonroad engine, replace each portable diesel-fueled engine so identified within two years of the first engine being offered for sale that satisfies the Tier 4 emission standards.

(2) Portable diesel-fueled engines that have not been permitted or registered prior to January 1, 2006, are subject to the following requirements:

- (A) except as allowed under flexibility provisions for equipment and vehicle manufacturers and post-manufacture marinizers pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations, the portable diesel-fueled engine shall meet the most stringent of the federal or California emission standard for nonroad engines; and

¹ Tier 1, 2, 3, and 4 refer to nonroad engine emission standards promulgated by ARB and U.S. EPA for newly manufactured engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulation. Each successive Tier represents more stringent emission standards and the requirements are phased-in over time with the Tier 1 engine standards becoming effective for some engines manufactured in 1996 and becoming effective for all engines by 2000. Tier 2 engine standards are phased in for engines manufactured beginning in 2001 and becomes effective for all engines by 2006. Similarly, Tier 3 engines are phased in for engines manufactured beginning in 2006, and Tier 4 engines are phased in for engines manufactured beginning in 2011.

- (B) a diesel-fueled portable engine used exclusively in emergency applications or qualifying as a low-use engine designation is subject to the requirements of section 93116.3(b)(3).
- (3) Except as provided in section 93116.3(b)(1)(B), portable diesel-fueled engines used exclusively in emergency applications or qualifying as low-use engines shall satisfy one of the following requirements by January 1, 2020:
 - (A) the portable diesel-fueled engine is certified to Tier 4 emission standards for newly manufactured nonroad engines; or
 - (B) the portable diesel-fueled engine is equipped with a properly functioning level-3 verified technology; or
 - (C) the portable diesel-fueled engine is equipped with a combination of verified emission control strategies that have been verified together to achieve at least 85% reduction in diesel PM emissions.
- (4) Lattice boom cranes
 - (A) A portable diesel-fueled engine used in a lattice boom crane shall be exempt from the requirements of section 93116.3(b)(1)(A) if the Responsible Official has demonstrated to the satisfaction of the Executive Officer or the APCO that the portable diesel-fueled engine in the lattice boom crane cannot be replaced with a portable diesel-fueled engine that is certified to meet a federal or California standard for newly manufactured nonroad engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations (that is, certified to Tier 1, 2 or 3 nonroad engine standards).
 - (B) Portable diesel-fueled engines exempt from the requirements of section 93116.3(b)(1)(A) pursuant to section 93116.3(b)(4)(A), shall satisfy one of the following requirements by January 1, 2020:
 - 1. the portable diesel-fueled engine is certified to Tier 4 emission standards for newly manufactured nonroad engines; or
 - 2. the portable diesel-fueled engine is equipped with a properly functioning level-3 verified technology; or

3. the portable diesel-fueled engine is equipped with a combination of verified emission control strategies that have been verified together to achieve at least 85% reduction in diesel PM emissions.

(c) Fleet Requirements

- (1) Each fleet is subject to and shall comply with the following weighted PM emission fleet averages expressed as grams per brake horsepower-hour (g/bhp-hr) by the listed compliance dates:

Fleet Standard Compliance Date	Engines <175 hp (g/bhp-hr)	Engines ≥175 to 749 hp (g/bhp-hr)	Engines ≥750 hp (g/bhp-hr)
1/1/13	0.3	0.15	0.25
1/1/17	0.18	0.08	0.08
1/1/20	0.04	0.02	0.02

- (2) For the purposes of this regulation, the portable diesel-fueled engines affected by the fleet provisions of this regulation include all portable diesel-fueled engines operated in California, including portable diesel-fueled engines registered with the Statewide Portable Equipment Registration Program or permitted by or registered with a local district.
- (3) The following portable diesel-fueled engines shall be excluded from the fleet requirements:
 - (A) portable diesel-fueled engines operated exclusively outside of California or operated only within the OCS.
 - (B) portable diesel-fueled engines used exclusively in emergency applications.
 - (C) portable diesel-fueled engines that qualify as low-use engines.
 - (D) portable diesel-fueled engines used in a lattice boom crane.
- (4) Portable diesel-fueled engines that qualify as low-use engines and subsequently exceed the allowed hours of operation in a calendar year, or portable diesel-fueled engines that are identified to be used exclusively in emergency applications but subsequently are used in non-emergency applications, become immediately subject to the requirements of section 93116.3(c) in the year such exceedence or

use occurs. For low-use engines, the hours of operation used for an emergency event shall not be counted toward the allowed hours of operation.

- (5) Portable alternative-fueled engines may be included in a fleet if the engine satisfies the requirements in section 93116.3(d)(2)(B).
- (6) Portable diesel-fueled portable engines equipped with SCR systems.
 - (A) The diesel PM fleet emission standards in section 93116.3(c)(1) do not apply to:
 - 1. portable diesel-fueled engines equipped with properly operating SCR systems as of January 1, 2004; and
 - 2. with the approval of the Executive Officer, portable diesel-fueled engines equipped with properly operating SCR systems after January 1, 2004.
 - (B) At the request of the Responsible Official, portable diesel-fueled engine(s) equipped with a SCR system(s) may be included in the company's fleet for the purpose of complying with an applicable fleet emission standard. Once the engine(s) is included in a fleet, compliance with applicable fleet emission standards shall always include these diesel-fueled portable engine(s).
 - (C) For all diesel-fueled portable engines equipped with SCR systems, the following information shall be submitted to the Executive Officer to demonstrate that the SCR system is operating properly:
 - 1. Tests results for NOx, PM, and ammonia slip
 - a. the following tests methods shall be used to demonstrate compliance:
 - i. NOx shall be measured with CARB test method 100 dated July 1997, or equivalent district-approved test method; and
 - ii. diesel PM shall be measured with CARB test method 5 dated July 1997 or equivalent district-approved test method. For the purposes of this requirement, only the probe catch and filter catch ("front half") is used to

determine the emission rate, g/bhp-hr, and shall not include PM captured in the impinger catch or solvent extract; and

iii. ammonia slip shall be measured with Bay Area Air Quality Management District Source Test Procedure ST-1B, Ammonia Integrated Sampling, dated January 1982, or other equivalent district approved test method.

b. the duration of the emission test shall be sufficient to document the typical operation of the portable diesel-fueled engine(s); and

c. testing shall be performed at the frequency required by the permit or registration. In no event shall the time between emission tests exceed three years.

(7) Beginning on January 1, 2013, the weighted average PM emission rate for the fleet cannot exceed the fleet standard that is in effect. Changes in the fleet, including portable engine additions and deletions, shall not result in noncompliance with this standard.

(d) Fleet Average Calculations

(1) General Provisions

(A) The average PM emission factor for the fleet is determined by the following formula:

$$\frac{\sum \text{Summation for each portable engine in the fleet (bhp x emission factor)}}{\sum \text{Summation for each portable engine in the fleet (bhp)}}$$

where:

bhp = maximum rated horsepower.

emission factor = diesel PM emission rate, as determined below:

(B) The following diesel PM emission rates shall be used with the above formula to determine the weighted average fleet emission rate:

1. for portable diesel-fueled engines certified to a nonroad engine standard, the results of emission measurements

submitted to either the U.S. EPA or CARB for the purposes of satisfying the appropriate emission standard; or

2. results from emission measurements from a verified emission control strategy may be used in conjunction with engine emission information; or
3. for portable diesel-fueled engine(s) equipped with SCR system(s), results from valid emission tests.

(2) The following incentives may be used to revise the fleet average, as outlined below:

(A) Where equipment uses grid power for more than 200 hours in lieu of operating a portable diesel-fueled engine for a given project, the time period grid power is used may be used to reduce each affected engine's emission factor. The emission factor for each affected portable engine will be reduced proportionally by the percentage of time the equipment uses grid power. To receive credit for grid power in the fleet calculation, the recordkeeping and reporting requirements in section 93116.4(c)(3) shall be satisfied.

(B) Alternative-fueled portable engines

1. Alternative-fueled portable engines operating 100 or more hours may be included toward determining compliance with the applicable fleet emission standards. A diesel PM emission rate of zero shall be used in the fleet calculations for these engines.
2. Alternative-fueled portable engines operating 100 or more hours per calendar year and added to a fleet prior to January 1, 2009, may be counted twice in the company's fleet average determination toward compliance with the 2013 and 2017 fleet emission standards. The alternative-fueled engine shall be certified to meet a federal or California standard for newly manufactured nonroad engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations.

(C) Portable diesel-fueled engines certified to Tier 4 nonroad engine standards that are added to a fleet prior to January 1, 2015, may be counted twice in the company's fleet average

determination toward compliance with the 2013 and 2017 fleet emission standards.

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

93116.4 FLEET RECORDKEEPING AND REPORTING REQUIREMENTS

- (a) The owner or operator of a fleet is not subject to the requirements of this section if each portable diesel-fueled engine in the fleet satisfies any one of the following requirements:
 - (1) the portable diesel-fueled engine is certified to Tier 4 emission standards for newly manufactured nonroad engines; or
 - (2) the portable diesel-fueled engine is equipped with a properly functioning level-3 verified technology; or
 - (3) the portable diesel-fueled engine is equipped with a combination of verified emission control strategies that have been verified together to achieve at least 85% reduction in diesel PM emissions.
- (b) Portable diesel-fueled engine(s) equipped with properly operating SCR system(s) shall be excluded from the requirements of section 93116.4(a) if the engine(s) is not subject to section 93116.3(c)(1).
- (c) Effective January 1, 2012, the Responsible Official of a fleet shall:
 - (1) Keep and maintain records for:
 - (A) alternative-fueled portable engines used as part of a company's fleet average, except as provided in section 93116.4(d); and
 - (B) portable diesel-fueled engines affected by the use of electrification; and
 - (C) portable diesel-fueled engines qualifying as low-use engines; and
 - (D) portable diesel-fueled engines used exclusively in emergency applications.

- (2) The Responsible Official, for all portable engines subject to section 93116.4(c)(1), shall:
 - (A) install or cause to be installed and properly maintained on each portable engine subject to recordkeeping a non-resettable hour-meter; and
 - (B) maintain on a calendar year basis a record of the total hours of operation for each portable engine. If the portable engine is used out-of-state, then the records may account for operation within California only, excluding operation within the OCS; and
 - (C) maintain all required records at a central place of business for five years. The records shall clearly identify each portable engine subject to the recordkeeping requirement as well as the annual hours of operation. These records are to be made available, upon request for inspection, to local air pollution control district or CARB personnel. The requested records shall be provided to the appropriate personnel within ten business days of the request.
- (3) The Responsible Official of a fleet electing to use electrification in determining the fleet average shall:
 - (A) notify the Executive Officer identifying the dates, location, duration of the project, and a description of the project that will rely on electrification instead of using portable diesel-fueled engines. The notification shall be provided prior to the start of the project; and
 - (B) identify each affected portable diesel-fueled engine, including: make, model, serial number, year of manufacture for each engine, emission factor (g/bhp-hr) and district permit or State/district registration number; and
 - (C) shall clearly identify the electrification activity, including indicating the amount of electricity used and the time period for the project; and
 - (D) shall retain copies of contracts or other documentation, with the project proponent and/or applicable utility, supporting the use of grid power.
- (4) Test results for SCR compliance shall be maintained at a central place of business for five years. At the request of CARB or district

personnel, the Responsible Official shall have three business days to provide a copy of the most recent test results.

- (d) Effective January 1, 2008, for alternative-fueled engines added to a fleet prior to January 1, 2009, the Responsible Official shall:
 - (1) install or cause to be installed and properly maintained on each portable engine subject to recordkeeping a non-resettable hour-meter; and
 - (2) maintain on a calendar year basis a record of the total hours of operation for each portable engine. If the portable engine is used out-of-state, then the records may account for operation within California only, excluding operation within the OCS; and
 - (3) maintain all required records at a central place of business for five years. The records shall clearly identify each portable engine subject to the recordkeeping requirement as well as the annual hours of operation. These records are to be made available, upon request for inspection, to local air pollution control district or CARB personnel. The requested records shall be provided to the appropriate personnel within ten business days of the request.
- (e) The Responsible Official of the fleet shall provide the following reports to the Executive Officer:
 - (1) A status report, due to the Executive Officer by March 1, 2011, that includes the following items:
 - (A) the fleet's weighted average PM emission rate for the 2010 calendar year, including a summary for each portable engine that is part of the fleet and each engine's emission rate (g/bhp-hr); and
 - (B) inventory of portable engines in the fleet identifying whether the engine is state-registered or permitted/registered with the district. Alternative-fueled engines should be identified by fuel type. The inventory shall identify the make, model, serial number, year of manufacture, primary fuel type, emission factor (g/bhp-hr), and district permit or State/district registration number for each engine to be used in the fleet average determination; and
 - (C) identify, if applicable, each portable diesel-fueled engine that the owner commits to replacing with a Tier 4 engine, including: make, model, serial number, year of manufacture for each

engine, and district permit or State/district registration number;
and

- (D) listing of portable diesel-fueled engines, if applicable, used exclusively in emergency applications. The listing shall identify each engine claiming use only in emergency applications, including: make, model, serial number, year of manufacture for each engine, emission factor (g/bhp-hr), and district permit or State/district registration number; and
 - (E) listing of portable diesel-fueled engines, if applicable, satisfying the low-use engine requirements. The listing shall identify each engine, including: make, model, serial number, year of manufacture for each engine, emission factor (g/bhp-hr), and district permit or State/district registration number; and
 - (F) listing of portable alternative-fueled engines, if applicable, added to the fleet prior to January 1, 2009, pursuant to section 93116.3(d)(2)(B)2. The listing shall identify each engine, including: make, model, serial number, year of manufacture for each engine, U.S. EPA engine family name, emission factor (g/bhp-hr), and district permit or State/district registration number; and
 - (G) for portable diesel-fueled engine(s) equipped with SCR system(s), documentation demonstrating that the SCR system is operating properly.
- (2) A statement of compliance signed by the Responsible Official that the fleet standards are being achieved and a summary that identifies each portable engine in the fleet and the associated emission rate (g/bhp-hr). Portable engines included in the fleet are those that are part of the fleet at the time the fleet standard became effective. The engine identification shall include, at a minimum, the make, model, serial number, and year of manufacture for each engine. Alternative-fueled engines should be identified by fuel type. The statements of compliance are due to the Executive Officer by the following dates:
- (A) March 1, 2013, for the fleet standards that become effective January 1, 2013; and
 - (B) March 1, 2017, for the fleet standards that become effective January 1, 2017; and
 - (C) March 1, 2020 for the fleet standards that become effective January 1, 2020.

- (3) The Responsible Official shall identify to the Executive Officer, as part of each compliance report, the specific portable diesel-fueled engines, if any, used exclusively in emergency applications and the specific portable diesel-fueled engines, if any, claimed to be low-use engine. The list shall include for each portable diesel-fueled engine: the make, model, serial number, year of manufacture for each engine, emission factor (g/bhp-hr), and district permit or State/district registration number.
- (4) The Responsible Official shall identify to the Executive Officer, as part of each compliance report, the specific portable diesel-fueled engines, if any, excluded from the fleet because the portable diesel-fueled engine operated exclusively outside of California or operated only within the OCS. The list shall include for each portable diesel-fueled engine: the make, model, serial number, year of manufacture, and, district permit or State/district registration number for each engine.
- (5) If compliance with the fleet average includes the use of electrification, the Responsible Official shall provide documentation supporting the credit claimed for electrification.
- (6) As part of each compliance report, the Responsible Official shall, if applicable, certify the following:
 - (A) all portable alternative-fueled engines included in the fleet average operated at least 100 hours during the previous 12 months prior to the fleet emission standard becoming effective.
 - (B) for all portable diesel-fueled engines used exclusively in emergency applications, the engines were used only for emergency applications.
 - (C) for all portable diesel-fueled engines using the low-use designation, the engines operated no more than 80 hours for the reporting period.
 - (D) for all portable diesel-fueled engines equipped with SCR, the engine complies with applicable district or Statewide Portable Equipment Registration Program requirements.
- (7) After March 1, 2013, the APCO or the Executive Officer may require the submittal of information demonstrating compliance with the applicable fleet standard. Upon receiving the request, the

Responsible Official shall provide the requested information within 30 days.

- (f) For fleets that are exempted from the requirements of section 93116.4 pursuant to section 93116.4 (a), the Responsible Official shall certify that all portable diesel-fueled engines in the fleet satisfy the requirements of section 93116.4(a). The Responsible Official shall provide the certification statement and a list of the portable diesel-fueled engines in the fleet to the Executive Officer when the fleet initially satisfies the requirements of section 93116.4(a). The list of engines shall identify the make, model, serial number, and district permit or State/district registration number for each engine.

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

93116.5 ENFORCEMENT OF FLEET REQUIREMENTS

- (a) Both the Executive Officer and the APCO have the authority to review or seek enforcement action for violation of the fleet emission standard.
- (b) The CARB will make available to the districts the information the Responsible Official has provided to CARB to demonstrate compliance with the fleet standard.

Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 41752, 43013 and 43018 Health and Safety Code. Reference: Sections 39650, 39666, 41752 Health and Safety Code.

FINAL REGULATION ORDER

AIRBORNE TOXIC CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEAN-GOING VESSELS AT- BERTH IN A CALIFORNIA PORT

Adopt new section 93118.3, title 17, chapter 1, subchapter 7.5, California Code of Regulations (CCR), to read as follows:

(Note: The entire text of section 93118.3 is new language.)

Section 93118.3. Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port.

(a) Purpose.

The purpose of this section is to reduce oxides of nitrogen (NO_x) and diesel particulate matter (PM) emissions from the operation of auxiliary engines on container vessels, passenger vessels, and refrigerated cargo vessels while these vessels are docked at berth at a California port. This section reduces emissions by limiting the time during which auxiliary diesel engines are operated on the regulated vessels while such vessels are docked at-berth in a California port, as well as by applying other requirements. This section implements provisions of the Goods Movement Emission Reduction Plan, adopted by the Air Resources Board (ARB) in April 2006, to reduce emissions and health risk from ports and the movement of goods in California. This section also helps achieve the goals specified in the California Global Warming Solutions Act of 2006, established under California law by Assembly Bill 32 (Stats. 2006, ch. 488) and set forth in Health and Safety Code § 38500 et seq.

(b) Applicability and General Exemptions.

- (1) Except as provided in this subsection (b), this section applies to any person who owns, operates, charters, rents, or leases any U.S. or foreign-flagged container vessel, passenger vessel, or refrigerated cargo vessel that visits a California port. In addition, this section also applies to any person who owns or operates a port or terminal located at a port where container, passenger, or refrigerated cargo vessels visit.
- (2) Nothing in this section shall be construed to amend, repeal, modify, or change in any way any applicable U.S. Coast Guard requirements. Any person subject to this section shall be responsible for ensuring compliance with both U.S. Coast Guard regulations and the requirements of this section, including but not limited to, obtaining any necessary approvals, exemptions, or orders from the U.S. Coast Guard.

(3) The requirements of this section do not apply to:

(A) Ocean-going vessel voyages that consist of continuous and expeditious navigation through any of the Regulated California Waters for the purpose of traversing such bodies of water without entering California internal or estuarine waters or calling at a port, roadstead, or terminal facility. "Continuous and expeditious navigation" includes:

1. Stopping and anchoring only to the extent such stopping and anchoring are required by the U.S. Coast Guard;
2. Rendered necessary by force majeure or distress; or
3. Made for the purpose of rendering assistance to persons, ships, or aircraft in danger or distress.

This exemption does not apply to the passage of an ocean-going vessel that engages in any of the prejudicial activities specified in United Nations Convention on the Law of the Seas (UNCLOS) 1982, Article 19, subpart 2. Further, notwithstanding any Coast Guard mandated stops or stops due to force majeure or the rendering of assistance, this exemption does not apply to a vessel that was otherwise scheduled or intended to enter California internal or estuarine waters or call at a port, roadstead or terminal facility.

(B) Auxiliary engines on-board ocean-going vessels owned or operated by any branch of local, state, federal government, or by a foreign government, when such vessels are operated on government non-commercial service. However, such vessels are encouraged to act in a manner consistent, so far as is reasonable and practicable, with this section.

(C) Steamships while berthed at a California port.

(D) Auxiliary engines while such engines are operating primarily on liquefied natural gas or compressed natural gas.

(E) Except as otherwise specified in subsection (d)(1)(I), fleets meeting the following criteria:

1. A fleet composed solely of container or refrigerated cargo vessels that visits the same California port fewer than 25 times total in a calendar year; and
2. A fleet composed solely of passenger vessels that visits the same California port fewer than 5 times total in a calendar year.

(c) *Definitions.*

For purposes of this section, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section:

- (1) "Alternative Control Technologies" means technologies, techniques, or measures that reduce the emissions of NOx and PM from an auxiliary diesel engine other than shutting down the engine.
- (2) "Auxiliary Engine" means an engine on an ocean-going vessel designed primarily to provide power for uses other than propulsion, except that all diesel-electric engines shall be considered "auxiliary diesel engines" for purposes of this section.
- (3) "Baseline Fleet Emissions" means the total emissions from all vessels in a fleet during all berthing times in a calendar year or other specified time period. For purposes of calculating the baseline fleet emissions, the auxiliary engines on the vessels in the fleet shall be assumed to use marine gas oil or marine diesel oil while at berth.
- (4) "Baseline Fleet Power Generation" refers to the electrical power used by all vessels in the fleet while the vessels are docked at berths located at a California Port during a calendar quarter or other time period specified in the regulation.
- (5) "Berthing Time" means the time period that begins when the vessel is first tied to the berth and ends when the vessel is untied from the berth.
- (6) "California Ports" means:
 - (A) The Port of Hueneme, the Port of Los Angeles (POLA) and Port of Long Beach (POLB), the Port of Oakland, the Port of San Diego, and the Port of San Francisco; and
 - (B) For purposes of this section, POLA and POLB are treated as one port.
- (7) "Charter Agreement" means a lease or agreement to hire a vessel or other means of conveyance to transport goods or passengers to one or more designated locations.
- (8) "Container Vessel" means a self-propelled ocean-going vessel constructed or adapted primarily to carry uniform-sized ocean freight containers.
- (9) "Diesel Engine" means an internal combustion, compression-ignition (CI) engine with operating characteristics significantly similar to the theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.

- (10) "Diesel-Electric Engine" means a diesel engine connected to a generator that is used as a source of electricity for propulsion or other uses.
- (11) "Diesel Particulate Matter" means the particles found in the exhaust of diesel engines, which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (12) "Distributed Generation" shall have the same meaning as that term is defined in title 17, CCR, section 94202.
- (13) "Docked at the Berth" means the state of being tied to a berth.
- (14) "Emergency Event" means the period of time during which any of the following events occurs; the emergency event begins when such an event begins and ends when the event is over:
- (A) Any situation arising from a sudden and reasonably unforeseeable event beyond the control of the master that threatens the safety of the vessel; or
 - (B) The utility serving the port cannot provide electrical power to the port as a result of equipment failure, a transmission emergency, distribution emergency, a California Independent System Operator (CAISO) or Los Angeles Department of Water and Power (LADWP) Stage 3 emergency, or the utility needs to reduce power to the port because of a sudden and reasonably unforeseeable natural disaster, such as, but not limited to, an earthquake, flood, or fire; or
 - (C) When the utility providing electrical power to the port notifies the terminal operator(s) to reduce the use of grid-based electrical power in response to a transmission or distribution emergency, a CAISO or LADWP Stage 3 emergency, or to avoid a Stage 3 emergency if one is anticipated. The emergency event ends when CAISO or LADWP cancels the Stage 3 emergency or the utility notifies the terminal operator(s) that reduction in the use of grid-based electrical power is no longer necessary. The port may contact the terminal operator(s) on behalf of the utility if such an agreement exists between the utility and the port; or
 - (D) The electrical system at the terminal cannot provide electrical power as a result of equipment failure.
- (15) "Executive Officer" means the executive officer of the Air Resources Board (ARB), or his or her designee.

- (16) "Fleet" means all container, passenger, and refrigerated cargo vessels, visiting a specific California port, which are owned and operated by, or otherwise under the direct control, of the same person. Direct control includes, but is not limited to, vessels that carry cargo or passengers for the person pursuant to a charter agreement or other arrangement with a third-party for the third-party to operate the vessel. For purposes of this definition, "direct control" does not include the vessel master or any other member of the vessel crew, unless the crew member is also the owner of the vessel. For the purposes of this section, a person shall be deemed to have separate fleets for each California port visited and each fleet is composed of one type of vessel. For example, if a person owns or operates vessels that visit both the Port of Los Angeles and Port of Oakland, that person is deemed to have two fleets, one a "POLA-based fleet" and the other a "Port of Oakland-based fleet."
- (17) "Marine Diesel Oil" means any fuel that meets all the specifications for DMB grades as defined in Table I of International Standard ISO 8217, as revised in 2005, which is incorporated herein by reference.
- (18) "Marine Gas Oil" means any fuel that meets all the specifications for DMX or DMA grades as defined in Table I of International Standard ISO 8217, as revised in 2005, which is incorporated herein by reference.
- (19) "Master" means the person who operates an ocean-going vessel or is otherwise in charge of the vessel's operations.
- (20) "Ocean-Going Vessel" means a commercial, government, or military vessel meeting any one of the following criteria:
- (A) A vessel greater than or equal to 400 feet in length overall (LOA) as defined in 50 Code of Federal Regulations (CFR) § 679.2, as adopted June 19, 1996;
 - (B) A vessel greater than or equal to 10,000 gross tons (GT ITC) pursuant to the convention measurement (international system) as defined in 46 CFR § 69.51-.61, as adopted September 12, 1989; or
 - (C) A vessel propelled by a marine compression ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.

For the purposes of this section, "ocean-going vessel" will be used interchangeably with the term "vessel."

- (21) "Operate" means steering or otherwise running the vessel or its functions while the vessel is underway, moored, anchored, or at berth.

- (22) "Own" means having all the incidents of ownership, including the legal title, of a vessel whether or not that person lends, rents, or pledges the vessel; having or being entitled to the possession of a vessel as the purchaser under a conditional sale contract; or being the mortgagor of a vessel.
- (23) "Oxides of Nitrogen" (NO_x) means compounds of nitric oxide (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen, which are typically created during combustion processes and are major contributors to smog formation and acid deposition.
- (24) "Particulate Matter" means any airborne finely divided material, except uncombined water, which exists as a liquid or solid at standard conditions (e.g., dust, smoke, mist, fumes, or smog).
- (25) "Passenger Vessel" means a self-propelled vessel constructed or adapted primarily to carry people.
- (26) "Person" includes all of the following:
- (A) Any person, agent, firm, association, organization, partnership, business trust, corporation, limited liability company, company, consortium, or any other commercial relationship;
 - (B) Any state or local governmental agency or public district, or any officer or employee thereof; and
 - (C) The United States or its agencies, to the extent authorized by federal law.
- (27) "Post-Baseline Fleet Emissions" means the total emissions from all vessels in a fleet after the application of one or more control techniques, such as alternative control technologies, electrical power from the utility grid, and electrical power from sources that are not part of the utility's electrical grid (distributed generation), during all berthing times in a calendar year or other specified time period. For purposes of calculating the baseline fleet emissions, the auxiliary engines on the vessels in the fleet shall be assumed to use marine gas oil or marine diesel oil while at berth.
- (28) "Refrigerated Cargo Vessel" (commonly known as "reefer") means a self-propelled vessel constructed or adapted primarily to carry refrigerated cargo. Refrigerated cargo vessels include vessels where the cargo may be stored in large refrigerated rooms within the vessel or vessels that carry refrigerated cargo containers exclusively.

- (29) "Regulated California Waters" means all of the following:
- (A) all California internal waters;
 - (B) all California estuarine waters;
 - (C) all California ports, roadsteads, and terminal facilities (collectively "ports");
 - (D) all waters within 3 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive;
 - (E) all waters within 12 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive;
 - (F) all waters within 24 nautical miles of the California baseline, starting at the California-Oregon border to 34.43 degrees North, 121.12 degrees West; inclusive; and
 - (G) all waters within the area, not including any islands, between the California baseline and a line starting at 34.43 degrees North, 121.12 degrees West; thence to 33.50 degrees North, 118.58 degrees West; thence to 32.65 degrees North, 117.81 degrees West; and ending at the California-Mexico border at the Pacific Ocean, inclusive.
- (30) "Responsible Official" means the individual(s) with the authority to certify that all vessels in a fleet comply with applicable requirements of this regulation.
- (31) "Shore power" refers to electrical power being provided by either the local utility or by distributed generation.
- (32) "Steamship" means a self-propelled vessel in which the primary propulsion and electrical power are provided by steam boilers.
- (33) "Synchronous Power Transfer" means the synchronized switchover in vessel-based power to shore-based power without a loss in power during such transfer.
- (34) "Terminal" means a facility consisting of wharves, piers, docks and other berthing locations and adjacent storage, which are used primarily for loading and unloading of passengers, cargo or material from vessels or for the temporary storage of this cargo or material on-site.
- (35) "Terminal Operator" means a person who leases terminal property from a port for the purpose of loading and unloading of passengers, cargo or material from vessels or for the temporary storage of this cargo or material on-site.
- (36) "Utility" shall have the same meaning and be used interchangeably with the term "Electric Utility" as defined in Public Resources Code section 25108.

(37) "Verified Emission Control Strategy" means an emission control strategy that has been verified pursuant to the "Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines" in title 13, California Code of Regulations, commencing with section 2700, which is incorporated herein by reference.

(38) "Visit" means the time period that begins when an ocean-going vessel initially ties to a berth (the beginning of the visit) and ends when it casts off the lines (the end of the visit) at a berth in a California port. For the purposes of determining the number of visits by a fleet, separate and sequential visits shall collectively be deemed a single visit when a vessel ties to two or more berths at the same California port and the time interval between leaving one berth and tying to another berth in the same port is less than two hours.

(d) *Vessel In-Use Operational Requirements.*

(1) Reduced Onboard Power Generation Option

(A) 2014 Requirements

Except as provided in subsection (d)(2), beginning January 1, 2014, the following shall apply to a fleet visiting a California port:

1. At least 50 percent of the fleet's visits to the port shall meet the onboard auxiliary diesel engine operational time limits in subsection (d)(1)(D); and
2. The fleet's onboard auxiliary-diesel-engine power generation while docked at the berth shall be reduced by at least 50 percent from the fleet's baseline power generation.

(B) 2017 Requirements

Except as provided in subsection (d)(2), beginning January 1, 2017, the following shall apply to a fleet visiting a California port:

1. At least 70 percent of the fleet's visits to the port shall meet the onboard auxiliary diesel engine operational time limits in subsection (d)(1)(D); and
2. The fleet's onboard auxiliary-diesel-engine power generation while docked at the berth shall be reduced by at least 70 percent from the fleet's baseline power generation.

(C) 2020 Requirements

Except as provided in subsection (d)(2), beginning January 1, 2020, the following shall apply to a fleet visiting a California port:

1. At least 80 percent of a fleet's visits to the port shall meet the onboard auxiliary diesel engine operational time limits in subsection (d)(1)(D); and
2. The fleet's onboard auxiliary-diesel-engine power generation while docked at the berth shall be reduced by at least 80 percent from the fleet's baseline power generation.

(D) Limits on Hours of Operation

1. Except as exempt in subsection (d)(1)(E), auxiliary diesel engines onboard vessels subject to subsection (d)(1)(A), (d)(1)(B), and (d)(1)(C) shall meet the following operational limits while at berth for the specified percentage of visits by the fleet:
 - a. Three hours total per visit to a berth, provided the visiting vessel uses a synchronous power transfer process to change from vessel-based power to shore-based power; or
 - b. Five hours total per visit to a berth, provided the visiting vessel does not use a synchronous power transfer process to change from vessel-based power to shore-based power.

For example, if a fleet is subject to subsection (d)(1)(A) and makes 10 visits to a California port in a calendar quarter, in at least 5 of those visits, the auxiliary diesel engines on the vessels shall be operated no more than a combined 3 or 5 hours total, depending on whether a synchronous power transfer is used. The 3- and 5-hour limit applies to the combined operating time for all auxiliary diesel engines used in a vessel visit, rather than on a per-engine basis.

(E) Exemptions to Limits on Hours of Operation

1. Emergency Event

All of the following requirements apply to claimed exemptions to limits on hours of operation based on emergency events:

- a. If the master of the vessel reasonably and actually determines that an emergency event, as defined in subsection (c)(14), occurs during the vessel's visit to a California port, the master of the

vessel may operate the vessel's auxiliary engines during the emergency event:

- b. The master shall not operate the vessel's auxiliary engines for more than one hour beyond the time when the master receives notification that the emergency event is over or determines that the emergency event is over; and
 - c. The provisions of paragraph (b) above notwithstanding, the master may continue to operate the auxiliary engines for no more than five hours if the master receives notification that the emergency event is over or determines that the emergency event is over, and the vessel is scheduled to leave port within five hours.
2. Delays Caused By the United States (U.S.) Coast Guard or Department of Homeland Security Inspections

The Executive Officer may extend the three-hour/five-hour operational requirement in subsection (d)(1)(D) if the following criteria are met:

- a. The initial inspection and clearance of the vessel by the Department of Homeland Security exceeds one hour. The time extension granted shall be commensurate with the excess time necessary for inspection and clearance; or
- b. After the auxiliary engines have been put back into service pending departure from the berth, the scheduled departure of the vessel has been delayed by U.S. Coast Guard or the Department of Homeland Security.

(F) Adjustments for Visits Meeting Exemption Criteria

The following adjustments can be made to visits meeting the exemption criteria where the vessel is capable of using shore power:

- 1. Visits exceeding the operational time limits in (d)(1)(D) that meet the exemption criteria in (d)(1)(E) shall be counted towards compliance with the minimum-visit requirements of (d)(1)(A), (d)(1)(B), and (d)(1)(C).
- 2. The onboard auxiliary diesel engine power generation associated with each visit meeting the exemption criteria in (d)(1)(E) above shall be excluded from the fleet's power reduction calculations pursuant to section (e)(1)(D).

(G) Compliance Periods

Compliance with the requirements in subsection (d)(1)(A), (d)(1)(B), and (d)(1)(C), shall be determined quarterly for the periods specified as follows:

1. January 1 through March 31, inclusive;
2. April 1 through June 30, inclusive;
3. July 1 through September 30, inclusive; and
4. October 1 through December 31, inclusive.

(H) No person shall sell, supply, offer to supply, or purchase electrical power for use on a vessel during a visit in lieu of using the on-board auxiliary diesel engines, unless such electrical power is either supplied by the local utility or is otherwise generated by equipment that meets the following emission standards:

1. NO_x emissions no greater than 0.03 gram per kilowatt-hour (g/kW-hr);
2. PM emissions equivalent to the combustion of natural gas with a fuel sulfur content of no more than one grain per 100 standard cubic foot;
3. Carbon dioxide (CO₂) emissions shall be no greater than 500 g/kW-hr; and
4. Ammonia emissions no greater than five parts per million on a dry volume basis (ppmdv), if selective catalytic reduction (SCR) is used.

(I) Notwithstanding the requirements specified in subsection (d)(1)(A), (d)(1)(B), and (d)(1)(C), any ocean-going vessel equipped to receive shore power that visits a terminal with a berth equipped to provide compatible shore power shall utilize the shore power during every visit to that berth, unless the berth is already occupied with a vessel receiving shore power. This requirement shall not apply under the following circumstances:

1. The master of the vessel reasonably and actually determines that an emergency event, as defined in subsection (c)(14)(A), is in effect and the use of shore power during the emergency event would endanger the vessel's safety. Shore power shall be used for the remainder of the visit once the master determines that the emergency event no longer exists;

2. An emergency event, as defined in subsection (c)(14)(B), (c)(14)(C), or (c)(14)(D) is in effect. Shore power shall be used for the remainder of the visit once the emergency event is no longer in effect; or
3. The equipment on the vessel that allows the use of electricity from the terminal fails to function and the master of the vessel has made the necessary effort to repair the equipment as documented pursuant to subsection (g)(1)(B)1g.

(2) Equivalent Emissions Reduction Option

The purpose of this provision is to allow any person the option of complying with the requirements of this subsection (d)(2) in lieu of meeting the requirements of subsection (d)(1).

(A) Requirements

For fleets using one or more control techniques including electric power from the utility grid, electrical power from sources that are not part of an utility's electrical grid (distributed generation), or alternative control technologies to reduce the emissions of the fleet, the owner or operator of the fleet shall comply with the following schedule and compliance period:

1. For each calendar year beginning on January 1, 2010 through December 31, 2011, inclusive, the NO_x and PM emissions from the fleet's auxiliary engines when the vessels in the fleet are docked at the berth must be reduced by 10 percent from the baseline fleet emissions.
2. For each calendar year beginning on January 1, 2012, through December 31, 2013, inclusive, the NO_x and PM emissions from the fleet's auxiliary engines when the vessels in the fleet are docked at the berth must be reduced by 25 percent from the baseline fleet emissions.
3. For the quarter beginning on January 1, 2014, and each subsequent quarter through December 31, 2016, inclusive, the NO_x and PM emissions from the fleet's auxiliary engines when the vessels in the fleet are docked at the berth must be reduced by 50 percent from the baseline fleet emissions.
4. For the quarter beginning on January 1, 2017, and each subsequent quarter through December 31, 2019, inclusive, the NO_x and PM emissions from the fleet's auxiliary engines when the vessels in the

fleet are docked at the berth must be reduced by 70 percent from the baseline fleet emissions.

5. For the quarter beginning on January 1, 2020, and each subsequent quarter thereafter, the NOx and PM emissions from the fleet's auxiliary engines when the vessels in the fleet are docked at the berth must be reduced by 80 percent from the baseline fleet emissions.

(B) Vessels Using Grid-Based Shore Power as a Control Technique

If a vessel is equipped to receive shore power provided by the utility grid but is unable to do so while at berth due to an emergency event, the onboard diesel auxiliary engine emissions from such visits shall be excluded from the fleet's emissions reduction calculations pursuant to (e)(2)(C).

(C) Applying Early or Excess Emissions Reduction to the 2010, 2012, or 2017 Emission Requirements

Early or excess emissions reduction that are approved by the Executive Officer pursuant to section (e)(2)(D) can be used towards compliance with requirements in (d)(2)(A)1, (d)(2)(A)2, or (d)(2)(A)4 as follows:

1. Reductions achieved before January 1, 2010 can be used towards complying with requirements in (d)(2)(A)1, (d)(2)(A)2, or (d)(2)(A)4.
2. Reductions achieved between January 1, 2010 and December 31, 2011, which exceed the amount required by (d)(2)(A)1, can be used towards complying with requirements in (d)(2)(A)2 and (d)(2)(A)4.
3. Reductions achieved between January 1, 2012 and December 31, 2013, which exceed the amount required by (d)(2)(A)2, can be used towards complying with (d)(2)(A)4.
4. Early or excess emission reductions cannot be used towards complying with the requirements in (d)(2)(A)3 or (d)(2)(A)5.

(D) Compliance with the requirements of subsection (d)(2)(A)3, (d)(2)(A)4, and (d)(2)(A)5 shall be determined quarterly for the periods specified as follows:

1. January 1 through March 31, inclusive;
2. April 1 through June 30, inclusive;

3. July 1 through September 30, inclusive; and

4. October 1 through December 31, inclusive.

(E) No person shall sell, supply, offer to supply, or purchase electrical power for use on a vessel during a visit in lieu of using the on-board auxiliary diesel engines, unless such electrical power is either supplied by the local utility or is otherwise generated by equipment that meet the following emission standards:

1. NO_x Emissions;

a. Up to and including December 31, 2013, the NO_x emissions shall be no greater than 2 g/kW-hr at any time; and

b. Beginning January 1, 2014, the NO_x emissions shall be no greater than 0.2 g/kW-hr at any time.

2. PM emissions shall be no greater than the PM emissions from combustion of natural gas with a fuel sulfur content of no more than one grain per 100 standard cubic foot;

3. CO₂ emissions shall be no greater than 500 g/kW-hr; and

4. Ammonia emissions shall be no greater than five ppm_{dv} if selective catalytic reduction is used.

(F) Alternative control technologies using SCR to comply with subsection (d)(2)(A) shall have ammonia emissions no greater than five ppm_{dv}.

(3) Limitations on Changing Compliance Options

Prior to January 1, 2014, fleets cannot change compliance options from (d)(1), the reduced onboard power generation option, to (d)(2), the equivalent emission reduction option, unless all of the following have been satisfied:

(A) Adequate emission reductions were achieved by the fleet prior to switching compliance options such that the requirements of (d)(2)(A)1 or (d)(2)(A)2, whichever is applicable, are satisfied;

(B) The Responsible Official of the fleet has submitted to the Executive Officer an application for the compliance option change that contains the following information:

1. A demonstration that the requirements of (d)(2)(A)1 or (d)(2)(A)2, whichever is applicable, are satisfied at the time of the application; and
 2. An updated vessel plan demonstrating compliance with (d)(2).
- (C) The Executive Officer determines that the information in the application satisfies (d)(3)(A) and that the fleet will comply with all applicable requirements of (d)(2).
- (e) *Calculations for Reduced Onboard Power Generation Option in Subsection (d)(1) and Equivalent Emissions Reduction Option in Subsection (d)(2).*

(1) Reduced Onboard Power Generation

For the purposes of subsection (d)(1), the percent reduction of onboard electrical generation from auxiliary diesel engines while vessels are docked at berth shall be calculated as follows:

$$\text{Percent Reduction} = \frac{[\text{Baseline fleet power generation (BFPG)} - \text{Power provided by fleet's auxiliary engines}]}{(\text{BFPG})}$$

Where the baseline fleet power generation and the power provided by the fleet's auxiliary engines are calculated as follows:

(A) Baseline Fleet Power Generation (BFPG)

The baseline power generation for the fleet shall be calculated using the following formula:

$$\text{Baseline Fleet Power Generation} = \sum (\text{berthing time} \times \text{power requirement})$$

Where:

"Berthing time" is the actual berthing time for each visit falling within the applicable period specified in subsection (d)(1)(G);

"Power requirements" means the electrical power requirement for the vessel making each visit as determined pursuant to subsection (e)(1)(C); and

"Σ" means the summation of all visits made by the fleet in the applicable period specified in subsection (d)(1)(G).

(B) Power provided by fleet's auxiliary engines

The power provided by the fleet's auxiliary engines is calculated as follows:

$$\text{Power provided by the auxiliary engines} = \sum (\text{Auxiliary engine operating time} \times \text{fleet's power requirement})$$

Where:

"Auxiliary engine operating time" is the actual time period these engines operated for each visit falling within the applicable period specified in subsection (d)(1)(G). Three hours for vessels using synchronous power transfer to grid-based shore power or five hours for vessels not using synchronous power transfer to grid-based shore power can be substituted for the actual operating times of the engines;

"Power requirements" means the electrical power requirement for the vessel making each visit as determined pursuant to subsection (e)(1)(C); and

" Σ " means the summation of all visits made by the fleet in the applicable period specified in subsection (d)(1)(G).

(C) Power Requirements

1. The following values in Table 1 may be used as default values for power requirements:

Table 1.

Vessel Category	Size / Type	Default Power Requirement (kW)
Container Vessel	<1000 TEU	1,000
	1,000-1,999 TEU	1,300
	2,000-2,999 TEU	1,600
	3,000-3,999 TEU	1,900
	4,000-4,999 TEU	2,200
	5,000-5,999 TEU	2,300
	6,000-6,999 TEU	2,500
	7,000-7,999 TEU	2,900
	8,000-9,999 TEU	3,300
	10,000-12,000 TEU	3,700
Passenger Vessel		No Default Value Use Actual Load
Refrigerated Cargo Vessel	Break Bulk	1,300
	Fully Containerized	3,300

TEU = twenty-foot equivalent unit.
kW = kilowatt

2. In lieu of the default values above, the fleet operator may, with adequate supporting documentation, use the actual power usage, on a monthly basis, rounded to the nearest whole kW-hrs.

- (D) The onboard auxiliary diesel engine power generation associated with each visit that meets the exemption criteria in (d)(1)(E) shall be excluded from the calculation for the fleet's baseline power generation and the calculation for the power provided by the fleet's auxiliary engines.

(2) Equivalent Emissions Reduction Option

For the purposes of subsection (d)(2)(A) the percent emission reduction shall be calculated as follows:

$$\text{Percent Reduction} = (\text{BFE} - \text{PBFE} - \text{FEC}) / \text{BFE}$$

Where, the baseline fleet emissions, post-baseline fleet emissions, and fleet emission credits are calculated as follows:

(A) Baseline Fleet Emissions (BFE)

The baseline fleet emissions of NO_x and PM shall be calculated using the following formula:

$$\text{Baseline Fleet Emissions} = \sum (\text{emission rate} \times \text{average berthing time} \times \text{power requirement} \times \text{visits})$$

Where:

“Emission rate” for each auxiliary engine is determined pursuant to subsection (e)(3);

“Average berthing time” for each vessel is determined for the applicable period specified in (d)(2)(D);

“Power requirements” means the electrical power requirement for each vessel as determined pursuant to subsection (e)(1)(C);

“Visits” means the total number of visits by the vessel during the applicable period specified in the appropriate subsection in (d)(2)(A) or subsection (d)(2)(D); and

“ Σ ” means the summation over the entire fleet subject to the emission reduction option.

(B) Post-Baseline Fleet Emissions (PBFE)

The post-baseline fleet emissions of NO_x and PM shall be calculated using the following formula:

$$\text{Post-Baseline Fleet Emissions} = \sum (\text{emission rate} \times \text{average berthing time} \times \text{power requirement} \times \text{visits} \times \text{control factor})$$

Where:

“Emission rate” for each auxiliary engine is determined pursuant to subsection (e)(3);

“Average berthing time” for each vessel is determined for the applicable period specified in the appropriate subsection in (d)(2)(A) or subsection (d)(2)(D);

“Power requirements” means the electrical power requirement for each vessel as determined pursuant to subsection (e)(1)(C);

“Visits” means the total number of visits by the vessel during the applicable period specified in the appropriate subsection in (d)(2)(A) or subsection (d)(2)(D);

“Control factor” means the applicable control factor specified in subsection (e)(4); and

“ Σ ” means the summation over the entire fleet subject to the emission reduction option.

(C) Adjustments to Baseline Fleet Emissions and Post-Baseline Fleet Emissions Calculations for Vessels Choosing to Use Grid-Based Shore Power

Emissions from a vessel capable of using shore power during a visit that can be classified as an emergency event shall be excluded from paragraphs (A) and (B) above.

(D) Fleet Emission Credits (FEC)

Fleets that achieve reductions of NO_x and PM emissions earlier than January 1, 2010, or in excess of the requirements of (d)(2)(A)1 or (d)(2)(A)2 may apply for fleet emission credits (FEC) that can be used toward compliance with the requirements in (d)(2)(A)1, (d)(2)(A)2, or (d)(2)(A)4. FECs can only be used by a fleet achieving the early or excess emission reductions, can be used only at the port where the early or excess emission reductions occurred, cannot be used in any other program administered by the Air Resources Board or local air district, and expire on March 1, 2018.

1. Eligible emission reductions are as follows:

- a. Emission reductions achieved prior to January 1, 2010.
- b. Emission reductions achieved between January 1, 2010, to December 31, 2011, beyond the amount required by (d)(2)(A)1.
- c. Emission reductions achieved between January 1, 2012, to December 31, 2013, beyond the amount required by (d)(2)(A)2.

2. Ineligible emission reductions

Emission reductions which are a result of a project that has received incentive funds through a contract or other binding agreement from the Air Resources Board or a local air district are not eligible emission reductions.

3. Applying for fleet emission credits

Applications for fleet emission credits must demonstrate that the emission reductions are quantifiable and occurred earlier than January 1, 2010, or were in excess of the requirements of (d)(2)(A)1 or (d)(2)(A)2. The information shall be submitted on forms specified by the Executive Officer according to the following schedule:

- a. Application for fleet emission credits for reductions achieved prior to January 1, 2010, shall be submitted to the Executive Officer by March 1, 2010.
 - b. Application for fleet emission credits for excess reductions beyond those required for (d)(2)(A)1 shall be submitted to the Executive Officer as part of the fleet's March 1, 2012 annual statement of compliance required pursuant to subsection (g)(2)(A)3.
 - c. Application for fleet emission credits for excess reductions beyond those required for (d)(2)(A)2 shall be submitted to the Executive Officer as part of the fleet's March 1, 2014 annual statement of compliance required pursuant to subsection (g)(2)(A)3.
4. Approval of fleet emission credits
- a. Within 30 calendar days of receipt of an application, the Executive Officer shall inform the Applicant in writing if the application is complete or deficient. If deemed deficient, the Executive Officer shall identify the specific information required to make the application complete.
 - b. Within 60 calendar days of the application being deemed complete, the Executive Officer shall approve or deny the fleet emission credit.
 - c. An applicant dissatisfied with the decision of the Executive Officer regarding the approval or denial of the fleet emission credit may appeal the decision within 30 calendar days in accordance with the Administrative Hearing Procedure for Petitions for Review of Executive Officer Decisions, Title 17 California Code of Regulations, commencing with section 60055.1.
 - d. Upon approval of the fleet emission credit, the Executive Officer shall issue a Certificate to the applicant. The Certificate shall identify the recipient of the certificate, the quantity of the fleet emission credit of each pollutant in tons per year, the port at which the reduction was created, and any other data deemed appropriate by the Executive Officer.

5. Using fleet emission credits

- a. Fleet emission credits may be applied to the percent emission reduction calculations used by the fleet to demonstrate compliance with the requirements in (d)(2)(A)1, (d)(2)(A)2, and (d)(2)(A)4. The fleet shall surrender the FEC Certificate(s) as part of the applicable annual compliance statement. If the entire FEC is used, the Executive Officer shall retain the Certificate. If only part of the FEC is used, the Executive Officer shall retain the old Certificate and issue a new Certificate identifying the remaining portion of the FEC.
 - b. The Executive Officer shall monitor the accumulation and use of the fleet emission credits.
 - c. Fleet emission credits cannot be used to comply with requirements in (d)(2)(A)3 or (d)(2)(A)5.
 - d. Fleets that switch compliance options from (d)(1), the reduced onboard power generation option, to (d)(2), the equivalent emission reduction option, cannot accumulate or use fleet emission credits.
- (3) A person complying with the requirements of subsection (d)(2) may choose any of the following emissions rates for use in the calculations specified in subsection (e)(2)(A) and (e)(2)(B):
- (A) Results from emission measurements for similar auxiliary diesel engines that are used to satisfy a marine engine standard, including U.S. Environmental Protection Agency (EPA) emission standards for marine engines (40 CFR Part 94), and the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78), both of which are incorporated herein by reference;
 - (B) Emission measurements approved by the Executive Officer and using the test methods specified in subsection (e)(4)(B)(3); or
 - (C) In lieu of test data measured pursuant to paragraph (A) or (B) above, the following emission rates may be used as default values:
 1. 13.9 g/kW-hr for NO_x.
 2. 0.38 g/kW-hr for PM if 0.11 to 0.5 percent sulfur marine gas oil or marine diesel oil is used as a fuel.

3. 0.25 g/kW-hr for PM if 0.10 or less sulfur content marine gas oil or marine diesel oil is used as a fuel.

(4) Control Factors

- (A) The emissions from vessels using grid power in lieu of the vessel's auxiliary engines when the vessels are at berth are presumed to be reduced by 90 percent.
- (B) No control efficiencies for alternative control technologies shall be used to comply with the requirements of this provision unless the control efficiencies are calculated or measured as follows:
 1. The control efficiencies shall be based on an emission test protocol that is approved by the Executive Officer prior to conducting the emission measurements;
 2. The results of the emission measurements conducted pursuant to paragraph 1 above are approved by the Executive Officer; and
 3. Emission measurements are conducted using the following test methods. Alternative tests methods may be used upon written approval from the Executive Officer:
 - a. NO_x and CO₂ shall be measured using California Air Resources Board (CARB) Test Method 100, dated July 1997, which is incorporated herein by reference, or equivalent district-approved test method;
 - b. Diesel PM shall be measured using ISO 8178 Test Procedures: ISO 8178-1: 1996(E) ("ISO 8178 Part 1"); ISO 8178-2:1996(E) ("ISO 8178 Part 2"); and ISO 8178-4: 1996(E) ("ISO 8178 Part 4"), all of which are incorporated herein by reference;
 - c. Ammonia slip shall be measured using the Bay Area Air Quality Management District Source Test Procedure ST-1B, Ammonia Integrated Sampling, dated January 1982, which is incorporated herein by reference, or other equivalent district approved test method; and
 - d. The sulfur content of fuels shall be determined pursuant to International Standard ISO 8754 (as adopted in 2003), which is incorporated herein by reference.
- (C) Results from emission measurements from a verified emission control strategy may be used in conjunction with engine emission information.

(D) The Executive Officer may request periodic emission testing or other types of monitoring to verify the proper operation of alternative control technologies or distributed generation equipment, or to verify the emission rate of an auxiliary engine.

1. At a minimum, emission control technologies shall be tested as follows and the results of such testing provided to the Executive Officer within 30 days of the testing:
 - a. Shore-based systems shall be tested annually to demonstrate the overall percentage of emission reduction being achieved.
 - b. Catalyst based air pollution control systems installed on vessels shall be tested after every 1,000 hours of operation to determine the overall percentage of emission reduction being achieved.
 - c. If SCR is used as a control technology, the emissions of ammonia shall also be measured at the same time the NO_x emissions are being measured.
2. The Executive Officer may modify the testing frequency as he/she deems appropriate.

(f) *Terminal Plan Requirements.*

- (1) The operator of a terminal that receives more than 50 vessel visits in 2008 shall submit for the Executive Officer's approval, a plan, and subsequent updates, that discusses how the terminal will accommodate the vessels that will visit the terminal and are subject to subsection (d)(1) and (d)(2). The initial plan shall address requirements in subsection (d)(1) and (d)(2) through 2020. The plan updates shall address any contingencies that may be necessary for the vessels to meet the requirements of subsection (d)(1) and (d)(2) by the applicable dates.

(A) *Schedule for Plan Submittals*

The terminal operator shall submit the initial plan and subsequent updates to the plan according to the schedule below (Table 2).

Table 2.

Vessel Compliance Option	Initial Terminal Plan Due Date	Subsequent Terminal Plan Updates
Reduced Onboard Power Generation Option: (d)(1)	July 1, 2009	July 1, 2013 July 1, 2016 July 1, 2019
Equivalent Emissions Reduction Option: (d)(2)	July 1, 2009	July 1, 2011 July 1, 2013 July 1, 2016 July 1, 2019

(B) Approval of Plans

- a. Within 30 calendar days of receipt of a plan, the Executive Officer shall inform the terminal operator in writing if the plan is complete or deficient. If deemed deficient, the Executive Officer shall identify the specific information required to make the plan complete.
- b. Within 60 calendar days of the plan being deemed complete, the Executive Officer shall approve or disapprove the plan based on a determination of it meeting the requirements of (f)(2) or (f)(3), whichever is applicable.

(2) Plan Requirements for Reduced Onboard Power Generation Option

The plan shall include discussion of necessary infrastructure modifications needed for affected fleets to satisfy the requirements of subsection (d)(1) by the 2014, 2017, and 2020 compliance dates. The plan shall also include the schedule for implementing the modifications. The discussion shall include the following:

(A) Discussion of ship activity and projected power demands at the terminal:

1. Number of ships and visits to the terminal;
2. The projected amount of electric power needed from the utility grid on an annual basis and the maximum power capacity;

(B) Discussion of available power at the terminal;

(C) Discussion of major infrastructure improvements to terminal that would be needed to provide projected power loads at the berth, including identification of existing berths to be modified or new berths to be constructed;

- (D) Discussion of improvements to port infrastructure that would be needed to provide projected power loads;
 - (E) Discussion of utility infrastructure improvements, if any, outside the port boundary that would be needed to provide projected power loads; and
 - (F) A schedule for each activity needed to implement (C), (D), and (E) above.
- (3) Plan Requirements for Equivalent Emissions Reduction Option
- (A) The plan shall include a description of the control techniques that will be used to reduce in-berth vessel emissions needed for affected fleets to satisfy requirements of subsection (d)(2) by the 2010, 2012, 2014, 2017, and 2020 compliance dates. These techniques would include electric power from the utility grid (grid-based shore power), electrical power from sources that are not part of a utility's electrical grid (distributed generation), and alternative control technologies;
 - (B) For berths where grid-based shore power will be implemented, the plan shall contain the information specified in subsection (f)(2);
 - (C) For berths where distributed generation will be implemented, the plan shall contain the following information:
 - 1. Identification and description of distributed generation equipment, including estimated electrical output and fuel input;
 - 2. Berth(s) where the equipment will be used;
 - 3. Number of ships and corresponding visits to the berth(s);
 - 4. Projected amount of electric power that will be needed at the berth(s) from the distributed generation equipment, calculated on an annual and maximum capacity basis;
 - 5. Schedule for deploying distributed generation equipment; and
 - 6. The estimated reductions in NO_x and PM emissions from vessels using the distributed generation equipment, including documentation supporting the anticipated reductions.
 - (D) For berths where alternative controls will be implemented, the plan shall contain the following information;

1. Identification and description of equipment, including whether it will be located on the ship or on the shore;
 2. Number of ships and corresponding visits using ship-side equipment;
 3. Number of ships and corresponding visits using shore-side equipment;
 4. Berth(s) where shore-side equipment will be used;
 5. Schedule for implementing equipment; and
 6. Estimated reductions in NO_x and PM emissions from vessels using the ship-side and shore-side equipment, including documentation supporting the anticipated reductions.
- (4) A port may submit terminal plans required under subsection (f)(1) on behalf of the terminals located at that port.

(g) *Reporting and Recordkeeping Requirements.*

- (1) Reporting and Recordkeeping Requirements for Persons that Comply with Subsection (d)(1)
- (A) The Responsible Official shall provide the following reports to the Executive Officer:
1. A vessel fleet plan for each California port visited by a fleet, where the fleet is not exempt pursuant to section (b)(3)(E).
 - a. The plan is due to the Executive Officer by July 1, 2013, and an updated plan is due by July 1, 2016, and July 1, 2019.
 - b. The plan must address the vessels in the fleet that visit the port and would be affected by the requirements specified in subsection (d)(1). The following information shall be included in the vessel fleet plan and subsequent updates:
 - i. Fleet information, including: vessel category for the fleet (container, passenger, or refrigerated cargo), name of the port visited by the fleet, name of terminals visited, number of ships visiting the port annually, and total number of ship visits to the port annually.

ii. Information on the vessels in the fleet that will have their emissions reduced to satisfy the requirements of subsection (d)(1).

I. Vessel plans that are due July 1, 2013, shall include the following vessel information:

1. Name and Lloyd's number of each vessel capable of using shore power by January 1, 2014, maximum power requirement of the vessel while at berth, and total number of annual visits to the port;
2. The number of vessels that will have the capabilities for using shore power by January 1, 2017, the maximum amount of power expected to be used by these vessels while at berth, and the total number of annual visits expected to be made by these ships to the port; and
3. The number of vessels that will have the capabilities for using shore power by January 1, 2020, the maximum amount of power expected to be used by these vessels while at berth, and the total number of annual visits expected to be made by these ships to the port.

II. Vessel plan updates that are due July 1, 2016, shall have the following vessel information:

1. Name and Lloyd's number of each vessel capable of using shore power by January 1, 2017, maximum power requirement of the vessel while at berth, and total number of annual visits to the port; and
2. The number of vessels that will have the capabilities for using shore power by January 1, 2020, the maximum amount of power expected to be used by these vessels while at berth, and the total number of annual visits expected to be made by these ships to the port.

III. Vessel plan updates that are due July 1, 2019, shall include the following vessel information:

Name and Lloyd's number of each vessel capable of using shore power by January 1, 2020, maximum power

requirement of the vessel while at berth, and total number of annual visits to the port.

2. An annual statement of compliance pursuant to subsection (d)(1).
 - a. The initial annual statement of compliance is due to the Executive Officer by March 1, 2015. This statement is for the 2014 calendar year. Thereafter, the annual statement is due to the Executive Officer by March 1 of each year, certifying compliance with the requirements for the previous calendar year.
 - b. The following information shall be included with the statement of compliance:
 - i. A statement signed by the Responsible Official that the requirements specified in subsection (d)(1) have been met for each California port visited by a fleet, where the fleet is not exempt pursuant to section (b)(3)(E).
 - ii. Information on visits and power requirements while at berth for all vessels within the fleet that visited the California port including:
 - I. Current name of the vessel;
 - II. Lloyd's number for the vessel;
 - III. Vessel type (container, passenger, refrigerated cargo);
 - IV. TEU capacity (container vessels only);
 - V. Total visits, by terminal;
 - VI. Number of visits where the vessel satisfied the requirements of (d)(1)(D);
 - VII. Number of visits where the visit for the vessel would fall within the exemptions identified in (d)(1)(E);
 - VIII. Average berthing time at the port; and
 - IX. Average power requirement for the vessel while at berth, in MW-hr.
 - iii. The information submitted pursuant to paragraph ii. above shall be reported for the following periods:
 - I. January 1 through March 31, inclusive;
 - II. April 1 through June 30, inclusive;
 - III. July 1 through September 30, inclusive; and
 - IV. October 1 through December 31, inclusive.

(B) Recordkeeping

1. The following records shall be kept at a central location by the vessel operator. A logbook that records, for each visit, the dates, times, and other information as specified below:
 - a. Name of the vessel, the port and terminal visited;
 - b. Power requirement while at berth;
 - c. When the vessel initially tied to the berth and when the vessel cast-off the tie lines;
 - d. When the auxiliary engines were shut down and subsequently restarted;
 - e. Whether departure from the berth was delayed by the U.S. Coast Guard or other federal agency. Identification of the agency that caused the delay, reason for the delay, and when the federal agency released the vessel;
 - f. If an emergency event occurred, a description and duration of that emergency event; and
 - g. For vessels subject to (d)(1)(I), a discussion of any onboard equipment failure that prevents the usage of shore power equipment. This discussion should include the date when equipment initially failed, identification of equipment that failed, and dates and description of each effort to repair the equipment.
 2. All records required pursuant to this provision shall be retained for a minimum of five years. This information shall be supplied to the Executive Officer within 30 days of a request from ARB staff.
- (2) Reporting and Recordkeeping Requirements for Persons Opting to Comply with the Equivalent Emissions Reduction Option in Subsection (d)(2)
- (A) The Responsible Official shall provide the following reports to the Executive Officer:
1. A vessel fleet plan for each California port visited by a fleet, where the fleet is not exempt pursuant to section (b)(3)(E).
 - a. The plan is due to the Executive Officer by July 1, 2009, and an updated plan is due by July 1, 2011, July 1, 2013, July 1, 2016, and July 1, 2019.

- b. The plan must address the vessels in the fleet that visit the port and would be affected by the requirements specified in subsection (d)(2). The following information shall be included in the vessel fleet plan and subsequent updates:
 - i. Fleet information, including: vessel category for the fleet (container, passenger, or refrigerated cargo), name of the port visited by the fleet, name of terminals visited, number of ships visiting the port annually, and total number of ship visits to the port annually.
 - ii. Information on the vessels in the fleet that will have their emissions reduced to satisfy the requirements of subsection (d)(2).
- I. Vessel plans that are due July 1, 2009, shall include the following vessel information:
 - 1. Name and Lloyd's number of each vessel that will have its emissions reduced to satisfy the requirements of (d)(2) as of January 1, 2010, type of control technique used (electric power from the utility grid, electrical power from sources that are not part of an utility's electrical grid (distributed generation), or alternative control technologies), maximum power requirement of the vessel while at berth (if using power from the grid or distributed generation), and total number of annual visits to the port, and
 - 2. The number of vessels that are expected to have their emissions reduced, by each type of control technique, to satisfy the requirements of (d)(2) by January 1, 2012, January 1, 2014, January 1, 2017 and January 1, 2020, and the total number of annual visits expected to be made by these ships to the port.
- II. Vessel plan updates that are due July 1, 2011, shall include the following vessel information:
 - 1. Name and Lloyd's number of each vessel that will have its emissions reduced to satisfy the requirements of (d)(2) as of January 1, 2012, type of control technique used, maximum power requirement of the vessel while at berth (if using power from the grid or distributed

generation), and total number of annual visits to the port; and

2. The number of vessels that are expected to have their emissions reduced, by each type of control technique, to satisfy the requirements of (d)(2) by January 1, 2014, January 1, 2017 and January 1, 2020, and the total number of annual visits expected to be made by these ships to the port.

III. Vessel plan updates that are due July 1, 2013, shall include the following vessel information:

1. Name and Lloyd's number of each vessel that will have its emissions reduced to satisfy the requirements of (d)(2) as of January 1, 2014, type of control technique used, maximum power requirement of the vessel while at berth (if using power from the grid or distributed generation), and total number of annual visits to the port; and
2. The number of vessels that are expected to have their emissions reduced, by each type of control technique, to satisfy the requirements of (d)(2) by January 1, 2017, and January 1, 2020, and the total number of annual visits expected to be made by these ships to the port.

IV. Vessel plan updates that are due July 1, 2016, shall include the following vessel information:

1. Name and Lloyd's number of each vessel that will have its emissions reduced to satisfy the requirements of (d)(2) as of January 1, 2017, type of control technique used, maximum power requirement of the vessel while at berth (if using power from the grid or distributed generation), and total number of annual visits to the port; and
2. The number of vessels that are expected to have their emissions reduced to satisfy the requirements of (d)(2) by January 1, 2020, by each type of control technique, and the total number of annual visits expected to be made by these ships to the port.

V. Vessel plan updates that are due July 1, 2019, shall include the following information:

Name and Lloyd's number of each vessel that will have its emissions reduced to satisfy the requirements of (d)(2) by January 1, 2020, type of control technique used, maximum power requirement of the vessel while at berth (if using power from the grid or distributed generation), and total number of annual visits to the port.

- iii. Description of the control technique(s) that will be used to reduce the vessels' auxiliary engine emissions to achieve the requirements specified in subsection (d)(2), including identifying the pollutant being reduced, the expected emission reduction (percent reduced), and the basis for determining the expected emission reduction, including submittal of emission testing results or other documentation.
2. If the Responsible Official submits an update to the vessel fleet plan for a fleet switching from the reduced onboard power generation compliance option to the equivalent emissions reduction option pursuant to (d)(3), the updated plan shall contain the same information required in (g)(2)(A)1.
3. An annual statement of compliance.
- a. The initial annual statement of compliance is due to the Executive Officer by March 1, 2011. This statement is for the 2010 calendar year. Thereafter, the annual compliance statement is due to the Executive Officer by March 1 of each year, certifying compliance with the requirements for the previous year.
 - b. The following items should be included with the statement of compliance:
 - i. A statement signed by the Responsible Official indicating that the NOx and PM emission reductions specified by (d)(2) have been achieved for each California port visited by a fleet, where the fleet is not exempt pursuant to section (b)(3)(E);
 - ii. The calculated NOx and PM baseline and post-baseline emissions for each fleet. The emissions must be calculated on a calendar year basis if complying with subsection (d)(2)(A)1 or subsection (d)(2)(A)2 and on a quarterly basis if complying with subsection (d)(2)(A)3, (d)(2)(A)4 and (d)(2)(A)5 as specified in (d)(2)(D). The following information shall be included for each vessel in the fleet:

- I. Current name;
 - II. Lloyd's number;
 - III. Vessel type (container, passenger, refrigerated cargo);
 - IV. Total visits by terminal;
 - V. Average berthing time at the port;
 - VI. Average power requirement for the vessel while at berth, in MW-hr;
 - VII. TEU capacity (container vessels only);
 - VIII. Type of control technique used (electrical power from the utility grid, distributed generation, or alternative control technologies); and
 - IX. Emissions of NO_x and PM, in pounds, for the reporting period.
- iii. The fleet emission credits that will be applied to the NO_x and PM emission reduction calculations for the fleet and the Certificate(s) for these credits that were issued pursuant to section (e)(2)(D); and
 - iv. Description of the control technique(s) used, achievable emission reductions, and supporting documentation (e.g., reference source test results pursuant to (e)(4)(D)1 or verification documentation). For subsequent statements of compliance, the supporting documents can be referenced, including the most recent source test submitted to the Executive Officer.

(B) Recordkeeping

The following records shall be kept at a central location by the fleet vessel operator.

- 1. For each calendar year of vessel activity, an annual summary of emissions that demonstrates compliance with the applicable emission reduction for 2010 and 2012, and a quarterly summary of emissions that demonstrates compliance with the applicable emission reduction for 2014, 2017, or 2020, which includes the following:
 - a. The fleet's baseline and post-baseline levels for NO_x and PM emissions for each California port; and
 - b. Each vessel's contribution to fleet's baseline and post-baseline NO_x and PM emissions, including the following information:
 - i. Name of each vessel;

- ii. Lloyd's number for each vessel;
 - iii. Fuel type and average sulfur content of fuel for each vessel;
 - iv. NOx and PM emissions for each vessel, in pounds;
 - v. Average berthing time for each vessel;
 - vi. Average power requirements for each vessel while at berth;
 - vii. Total visits to each terminal at the California port made by the vessel;
 - viii. Technology used to reduce emissions and associated control factor used; and
 - ix. Any equipment failure aboard a vessel that prevented the vessel from using the emissions reduction technology.
2. Additional recordkeeping requirements for fleets using grid-based shore power to satisfy (d)(2):
- If the vessel could not use shore power as a result of an emergency event, a description and duration of that emergency event.
3. Records made pursuant to paragraph (2)(B) above shall be kept for a minimum of five years. This information shall be supplied to the Executive Officer within 30 days of a request from ARB staff.

(3) Reporting Requirements for Ports and Terminals

- (A) Each California port shall provide wharfinger information to the Executive Officer annually, beginning with the wharfinger information for calendar year 2010.
- 1. This information shall be provided to the Executive Officer no later than April 1 of the following year.
 - 2. At a minimum, the wharfinger information shall include for each vessel visiting the port:
 - a. Name of the vessel;
 - b. Vessel type;
 - c. Company operating the vessel;

- d. Lloyd's number for each vessel;
 - e. Berth used by the vessel; and
 - f. Date(s) and time the vessel was initially tied to the berth and subsequently released from the berth.
- (B) The terminal operator shall keep the following records. These records shall be supplied to the Executive Officer within 30 days of a request from ARB staff:
- 1. Electricity usage for shore power:
 - a. Monthly utility billing statements that separately identify electricity supplied for shore power;
 - b. Episodes of electrical service interruption by local utility company, as confirmed and documented by local utility company; and
 - c. For distributed generation, monthly records that contain the following:
 - i. Names of vessels serviced;
 - ii. Location of vessels serviced, by berth;
 - iii. Date and time of use; and
 - iv. Power, in megawatts, supplied to the vessels.
 - 2. Date, time, and description of equipment failure located at the terminal that affected the ability of vessels to turn off their auxiliary engines or use alternative control technologies to reduce emissions pursuant to (d)(2);
 - 3. Record of each vessel that did not operate its auxiliary engines while the vessel was docked at the berth:
 - a. Name of vessel; and
 - b. Date and time each vessel was initially tied to the terminal.
 - 4. Records made pursuant to paragraph (3)(B) above shall be kept for five years.
- (4) Electronic submittals of records and other information required under this section may be approved by the Executive Officer upon request, provided such electronic submittals use digital signatures that meet the requirements specified in Government Code section 16.5. Notwithstanding the approved

submittal of electronic records, the Executive Officer may request the submittal of a hard copy of any electronic submittal.

(h) *Violations.*

- (1) Except as otherwise specified in this subsection, any person who is subject to this section and commits a violation of any provision, prohibition, limit, standard, criteria, or requirement in this section is subject to the penalties, injunctive relief, and other remedies specified in Health and Safety Code section 42400 et seq., other applicable sections in the Health and Safety Code; and other applicable provisions as provided under California law for each violation. Nothing in this section shall be construed to limit or otherwise affect any applicable penalties or other remedies available under federal law.
- (2) Except as otherwise specified in this subsection, any failure to meet any provision, prohibition, limit, standard, criteria, or requirement in this section, including but not limited to the applicable emission limits for supplied shore power and hours of engine operation limits, shall constitute a single, separate violation of this section for each hour that a person operates the auxiliary diesel engine until such provision, prohibition, limit, standard, criteria, or requirement has been met.
 - (A) The number of violations if the provisions of (d)(1) are not satisfied are determined as given below:
 1. If the fleet fails to achieve the baseline power reduction requirement as specified in (d)(1)(A), (d)(1)(B), or (d)(1)(C), the number of violations shall be determined with the formula in (h)(2)(C)1;
 2. If the fleet fails to achieve the applicable percentage of visits satisfying (d)(1)(D) as specified in (d)(1)(A), (d)(1)(B), or (d)(1)(C), the number of violations shall be determined with the formula in (h)(2)(C)2;
 3. If the fleet fails to achieve both the baseline power reduction and the applicable percentage of visits satisfying (d)(1)(D) as specified in (d)(1)(A), (d)(1)(B), or (d)(1)(C), the number of violations shall be determined with the formula in (h)(2)(C)3; and
 4. If a vessel subject to (d)(1)(I) does not use shore power for every visit to terminals that have available shore power, the number of violations shall be determined with the formula in (h)(2)(C)2.
 - (B) If the emission reductions, pursuant to (d)(2), do not achieve the applicable percentage of reduction, the number of violations shall be determined with the formula in (h)(2)(C)4.

(C) Formulas for Determining Number of Violations:

1. Number of reduced onboard power violations =
MW-Hr shortfall / 1.8
2. Number of visits violations = visits * MW-Hr per visit / 1.8

"Visits" refers to the shortfall in the number of visits in the applicable quarter that should have satisfied the requirements of (d)(1)(A), (d)(1)(B), or (d)(1)(C).

"MW-Hr per visit" shall be based on the average MW-Hr for a visit for the applicable quarter (Σ total MW-Hr in quarter / total visits in quarter).

3. Number of both reduced onboard power and visits violations =
MW-Hr shortfall for the applicable quarter / 1.2
4. Number of emission reduction violations =
[NOx + PM shortfall (pounds)] / 57

- (3) A violation of the recordkeeping and reporting requirements in this section shall constitute a single, separate violation of this section for each day that the applicable recordkeeping or reporting requirement has not been met.

(i) *Severability.*

If any subsection, paragraph, subparagraph, sentence, clause, phrase, or portion of this regulation is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions of the regulation.

NOTE: Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666 and 41511, Health and Safety Code. Reference: Sections 39650, 39658, 39659, 39666, 41510, and 41511, Health and Safety Code.

FINAL REGULATION ORDER

AMENDMENTS TO THE REGULATIONS TO REDUCE EMISSIONS FROM DIESEL ENGINES ON COMMERCIAL HARBOR CRAFT OPERATED WITHIN CALIFORNIA WATERS AND 24 NAUTICAL MILES OF THE CALIFORNIA BASELINE

Division 3. Air Resources Board Subchapter 7.5. Airborne Toxic Control Measures

Note: This document is printed in a style to indicate changes from the existing provisions in title 17, California Code of Regulations, section 93118.5. All existing language is indicated by plain type. All additions to the language are indicated by underlined text. All deletions are indicated by ~~strikeout~~.

Section 93118.5. Airborne Toxic Control Measure for Commercial Harbor Craft.

(a) Purpose.

The purpose of this section is to reduce diesel particulate matter (PM), oxides of sulfur (SO_x), and oxides of nitrogen (NO_x) from diesel propulsion and auxiliary engines on harbor craft that operate in any of the waters subject to this section ("Regulated California Waters"). This section implements provisions of the Goods Movement Emission Reduction Plan, adopted by the California Air Resources Board (ARB or CARB) in April 2006, to reduce emissions and health risk from ports and the movement of goods in California.

(b) Applicability.

(1) Except as provided in subsections (b) and (c), this section applies to any person who sells, supplies, offers for sale, purchases, owns, operates, leases, charters, or rents any new or in-use diesel fueled harbor craft that is operated in any of the Regulated California Waters.

(2) *Engine Subject to Multiple ARB Regulations.* ~~The requirements of this section shall control in the event an engine that is permanently affixed to on a harbor craft is subject to the requirements of this section, and either:~~

~~(A) of this section, and either~~

~~(A)(B)~~ the regulation for portable compression ignition (CI) engines and equipment (sections 93116-93116.5, title 17, California Code of Regulations (CCR)), or

~~(B)(C)~~ the regulation for in-use off-road CI diesel vehicles engines and equipment (sections 2420-2427, title 13, CCR)._{1.}

the requirements of this section shall supersede the requirements of either of the regulations cited in 93118.5(b)(2)(A) or 93118.5(b)(2)(B) above.~~This provision shall apply only to each engine on the vessel that meets the above requirements and is permanently affixed to the vessel (i.e., the engine, its fueling system, or its exhaust system is welded or otherwise physically connected to the vessel or other vessel system in such a way that the engine cannot be easily removed for use in a land-based application without modifications).~~

- (3) This section applies to towboats and tugboats engaged in or intending to engage in the service of pulling, pushing, or hauling alongside tank vessels or tank barges.
- (4) Notwithstanding the provisions of title 13, CCR, section 2299.1 and title 17, CCR, section 93118, this section shall apply to any ocean-going tugboats and towboats and shall supersede the requirements of 13 CCR 2299.1 and 17 CCR 93118 in their entirety for ocean-going tugboats and towboats. For purposes of this paragraph, "ocean-going tugboats and towboats" shall mean tugboats and towboats with a "registry" (foreign trade) endorsement on its United States (U.S.) Coast Guard certificate of documentation, or tugboats and towboats that are registered under the flag of a country other than the United States.
- (5) Nothing in this section shall be construed to amend, repeal, modify, or change in any way any other applicable State, U.S. Coast Guard, or other federal requirements. Any person subject to this section shall be responsible for ensuring compliance with both U.S. Coast Guard regulations and the requirements of this section and any other applicable State and federal requirements, including but not limited to, obtaining any necessary approvals, exemptions, or orders from the U.S. Coast Guard.
- (6) This section shall not apply to any engine and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act (42 United States Code (U.S.C.) 7543(e)(1)(A)) and as defined by regulation of the U.S. Environmental Protection Agency (U.S. EPA).

(c) *Exemptions.*

All or portions of this section do not apply to the following, as provided below, but vessels that are partly or wholly exempt from this section may be subject to other State or federal regulations and requirements. A person subject to such other State or federal regulations and requirements is solely responsible for ensuring the vessel complies with those regulations and requirements. All other portions of this section shall apply unless otherwise specified:

- (1) The requirements of this section do not apply to harbor craft voyages that are comprised of continuous and expeditious navigation through any of the Regulated California Waters for the purpose of traversing such bodies of water without entering California internal or estuarine waters or calling at a port,

roadstead, or terminal facility. "Continuous and expeditious navigation" includes stopping and anchoring only to the extent such stopping and anchoring are required by the U.S. Coast Guard; rendered necessary by force majeure or distress; or made for the purpose of rendering assistance to persons, ships, or aircraft in danger or distress. This exemption does not apply to the passage of a harbor craft that engages in any of the prejudicial activities specified in United Nations Convention on the Law of the Seas (UNCLOS) 1982, Article 19, subpart 2. Further, notwithstanding any U.S. Coast Guard mandated stops or stops due to force majeure or the rendering of assistance, this exemption does not apply to a vessel that was otherwise scheduled or intended to enter California internal or estuarine waters or call at a port, roadstead or terminal facility;

- (2) Except as provided in Paragraph (3) below, a temporary replacement vessel is exempt only from the requirements set forth in subsection (e)(6) and only upon written approval by the ARB's Executive Officer (E.O.). All other provisions in this section shall apply to a temporary replacement vessel subject to this paragraph. An owner or operator, who has or will have a vessel taken out of service, may apply in writing to the E.O. to operate a temporary replacement vessel pursuant to the following:
 - (A) The E.O. shall approve or disapprove such a request within 15 days of receipt. The E.O. shall not unreasonably withhold approval of the request to operate the temporary replacement vessel;
 - (B) If the approval is granted, the temporary replacement vessel's operating time will be specified in the approval by the E.O., along with any other terms, conditions, or requirements the E.O. deems necessary, but in no case shall the approved operating time in Regulated California Waters for a specific temporary replacement vessel exceed one year total for any single vessel that is temporarily replaced; and
 - (C) No temporary replacement vessel exemptions shall be approved for a vessel that is taken out of service more than 12 months in any 24-month period or if the E.O. cannot determine the length of time a vessel has been taken out of service within any 24-month period;
- (3) A temporary replacement vessel used to replace a vessel that has its homeport in the South Coast Air Quality Management District (SCAQMD) is exempt only from the compliance dates set forth in Table 8 of subsection (e)(6) and only upon written approval from the E.O. All other provisions in this section, including but not limited to, the compliance dates specified in Table 7, Table 9, and Table 10 of subsection (e)(6), shall apply to a temporary replacement vessel subject to this paragraph. An owner or operator, who has or will have a vessel taken out of service, may apply in writing to the E.O. to operate a temporary replacement vessel pursuant to the following:

- (A) The E.O. shall approve or disapprove such a request within 15 days of receipt. The E.O. shall not unreasonably withhold approval of the request to operate the temporary replacement vessel;
 - (B) If the approval is granted, the temporary replacement vessel's operating time will be specified in the approval by the E.O., along with any other terms, conditions, or requirements the E.O. deems necessary, but in no case shall the approved operating time in Regulated California Waters for a specific temporary replacement vessel exceed one year total for any single vessel that is temporarily replaced; and
 - (C) No temporary replacement vessel exemptions shall be approved for a vessel that is taken out of service more than 12 months in any 24-month period or if the E.O. cannot determine the length of time a vessel has been taken out of service within any 24-month period;
- (4) A temporary emergency rescue/recovery vessel is exempt from this section in its entirety;
 - (5) A recreational vessel is exempt from this section in its entirety;
 - (6) An ocean-going vessel, except for ocean-going tugboats and towboats as provided in subsection (b)(4), is exempt from this section in its entirety;
 - ~~(7) The following engines are exempt from this section in its entirety:~~
 - ~~(A) Notwithstanding section (b)(2), a vessel engine, including an engine on a barge, which is registered with ARB's Portable Engine Registration Program (PERP) (sections 2450 through 2465, title 13, CCR) before January 1, 2009;~~
 - ~~(B) A vessel engine that is registered with PERP on or after January 1, 2009, and is not permanently affixed to the vessel (i.e., the engine, its fueling system, and its exhaust system are not welded or otherwise physically connected to the vessel or other vessel system, which permits the engine to be easily removed for use in a land-based application without modifications); and~~
 - ~~(C) A vessel engine that is registered and permitted under local air district regulations before January 1, 2009;~~
 - ~~(87)~~ A registered historic vessel is exempt only from subsection (e)(6);
 - ~~(98)~~ A U.S. Coast Guard vessel is exempt from this section in its entirety;
 - ~~(109)~~ A military tactical support vessel is exempt from this section in its entirety;
 - ~~(110)~~ An engine rated less than 50 horsepower (hp) is exempt only from subsection (e)(6);

~~(12) An engine or vessel that is operated less than 300 hours per calendar year is exempt only from the requirements of subsection (e)(6); and~~

(131) *Near-Retirement Vessels.* A harbor craft is exempt from the requirements of subsection (e)(6)(C) and (e)(6)(D) if all of the following criteria have been met:

- (A) the vessel is scheduled to be taken out of service and retired permanently;
- (B) the vessel is actually taken out of service and retired on or before the retirement date scheduled under (A) above; and
- (C) the vessel has an engine with a compliance date, as set forth in subsection (e)(6)(D), that is within one year of the vessel's scheduled retirement date under (A) above.

Operation of a vessel subject to this provision after the scheduled retirement date or the engine's compliance date, whichever occurs later, is a separate violation of this section for each and every engine and each and every day of operation during which an engine on the vessel does not meet the requirements of subsection (e)(6)(C) or other parts of this section.

(d) Definitions.

For purposes of this section, the definitions of Health and Safety Code (H&S) sections 39010 through 39060 shall apply except as otherwise specified in this section:

- (1) "Air District" means one of the local air pollution control districts (APCDs) or air quality management districts (AQMDs) established under H&S section 40000 et seq.
- (2) "Alternative Diesel Fuel" means any fuel used in a diesel engine that is not commonly or commercially known, sold, or represented by the supplier as diesel fuel No. 1-D or No. 2-D, pursuant to the specifications in American Society for Testing and Materials (ASTM) D975-81, "Standard Specification for Diesel Fuel Oils," as modified in May 1982, which is incorporated herein by reference, and does not require engine or fuel system modifications for the engine to operate, although minor modifications (e.g., recalibration of the engine fuel control) may enhance performance. Examples of alternative diesel fuels include, but are not limited to, biodiesel and biodiesel blends not meeting the definition of CARB diesel fuel; Fischer-Tropsch fuels; emulsions of water in diesel fuel; and fuels with a fuel additive, unless:
 - (A) the additive is supplied to the engine fuel by an on-board dosing mechanism, or
 - (B) the additive is directly mixed into the base fuel inside the fuel tank of the engine, or

- (C) the additive and base fuel are not mixed until engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine.
- (3) "Alternative Fuel" means natural gas, propane, ethanol, methanol, gasoline, hydrogen, electricity, or other technologies that do not meet the definition of CARB diesel or alternative diesel fuel. "Alternative fuel" also means any mixture that only contains these fuels.
- (4) "Annual Hours of Operation" means the total number of hours, rounded to the nearest whole hour, a vessel engine is used for all commercial purposes in Regulated California Waters in the calendar year (January 1 to December 31) immediately prior to the engine's applicable compliance date set forth in subsection (e)(6)(D). For example, if a vessel is used for commercial fishing and commercial non-fishing purposes, the total number of hours combined for both uses shall be the total annual hours of operation for that vessel.
- (5) "Auxiliary Engine" means an engine designed primarily to provide power for uses other than propulsion.
- (6) "Averaging" means an exchange of excess reduced regulated emissions among engines on vessels in the same owner's or operator's fleet.
- (7) "Baseline" means the emissions level of a diesel engine using CARB diesel fuel as configured upon initial marine installation.
- (8) "Barge" means a vessel having a flat-bottomed rectangular hull with sloping ends and built with or without a propulsion engine.
- (9) "California Air Resources Board (CARB) Diesel Fuel" means any diesel fuel that meets the specifications of vehicular diesel fuel, as defined in title 13 CCR, sections 2281, 2282, 2284, 2299, and title 17 CCR section 93116.
- (10) "California Baseline" means the mean lower low water line along the California coast, as shown on the following National Oceanic and Atmospheric Administration (NOAA) Nautical Charts as authored by the NOAA Office of Coast Survey, which are incorporated herein by reference:
- (A) Chart 18600, Trinidad Head to Cape Blanco (January 2002);
 - (B) Chart 18620, Point Arena to Trinidad Head (June 2002);
 - (C) Chart 18640, San Francisco to Point Arena (August 2005);
 - (D) Chart 18680, Point Sur to San Francisco (June 2005);
 - (E) Chart 18700, Point Conception to Point Sur (July 2003);
 - (F) Chart 18720, Point Dume to Purisima Point (January 2005); and
 - (G) Chart 18740, San Diego to Santa Rosa Island (~~April 2005~~March 2007).

- (11) "CARB" means the California Air Resources Board. CARB may also be referred to as "ARB."
- (12) "Carbon Monoxide (CO)" is a colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels.
- (13) "Category 1 engine" means any marine engine with a displacement of less than 5.0 liters per cylinder and with a maximum horsepower (hp) rating of 50 hp or greater.
- (14) "Category 2 engine" means any marine engine with a displacement of 5.0 to less than 30 liters per cylinder.
- (15) "Category 3 engine" means any marine engine with a displacement of greater than 30 liters per cylinder.
- (16) "Certified marine engine" means an engine that is certified by U.S. EPA as meeting the requirements of title 40, Code of Federal Regulations (CFR), Part 94 or Part 1042.
- (17) "Certified nonroad engine" means an engine that is certified by U.S. EPA as meeting the requirements of title 40, CFR, Part 89 or Part 1039.
- (17~~8~~) "Coast Guard Vessel" means any vessel or boat owned or operated by the U.S. Coast Guard, including, but not limited to, U.S. Coast Guard cutters and patrol boats that are used for law enforcement, defense operations, marine science, search and rescue missions, training missions, coastal surveillance, servicing aids to navigation, and marine environmental response.
- (18~~9~~) "Compliance Date" means the date by which time a vessel engine must meet the requirements set forth in subsection (e)(6)(C). The "compliance date" for a vessel engine is set forth in ~~either Table 7 or~~ Table 8, Table 9, or Table 10 in subsection (e)(6)(D), whichever is applicable.
- (19~~20~~) "Crew and Supply Vessel" means a self-propelled vessel used for carrying personnel and/or supplies to and from off-shore and in-harbor locations (including, but not limited to, off-shore work platforms, construction sites, and other vessels).
- (20~~1~~) "Date of Acquisition" means, for a vessel or engine subject to this regulation, the date of purchase as defined by the date shown on the front of the cashed check, the date of the financial transaction, or the date on the vessel or engine purchasing agreement, whichever is earliest of the three dates.
- (21~~2~~) "Diesel Engine" means an internal combustion, compression-ignition (CI) engine, or pilot ignition engine with operating characteristics significantly similar to the

theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.

- (223) “Diesel Fuel” means any fuel that is commonly or commercially known, sold, or represented by the supplier as diesel fuel, including any mixture of primarily liquid hydrocarbons (HC) - organic compounds consisting exclusively of the elements carbon and hydrogen - that is sold or represented by the supplier as suitable for use in an internal combustion, compression-ignition engine.
- (234) “Diesel-Fueled” means a diesel engine fueled in whole or part by diesel fuel.
- (245) “Diesel Oxidation Catalyst (DOC)” means an emission control technology that employs a catalyst to promote oxidation processes in diesel exhaust gases, usually designed to reduce emissions of the organic fraction of diesel particulates, gas-phase HC, and CO.
- (256) “Diesel Particulate Filter (DPF)” means an emission control technology that reduces diesel PM emissions in engine exhaust gases by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.
- (267) “Diesel Particulate Matter (Diesel PM)” means the particles found in the exhaust of diesel engines, which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (278) “Direct Control” means owning, operating, having a contract, lease, or other arrangement to operate a harbor craft.
- (29) “Dredge” means a vessel designed to remove earth from the bottom of waterways, by means of including, but not limited to, a scoop, a series of buckets, or a suction pipe. Dredges include, but are not limited to, hopper dredges, clamshell dredges, or pipeline dredges.
- (2830) “Emission Control Strategy” means any device, system, or strategy employed to reduce emissions from an engine, including, but not limited to, diesel oxidation catalysts, selective catalytic reduction systems, diesel particulate filters, alternative diesel fuels, water emulsified fuels, and any combination of the above.
- (2931) “Estuarine Waters” means an arm of the sea or ocean that extends inland to meet the mouth of a river.
- (302) “Excursion Vessel” means a self-propelled vessel that transports passengers for purposes including, but not limited to, dinner cruises; harbor, lake, or river tours; scuba diving expeditions; and whale watching tours. “Excursion Vessel” does not include crew and supply vessels, ferries, and recreational vessels.

- (343) "Executive Officer" means the Executive Officer (E.O.) of the California Air Resources Board or his/her designee.
- (34) "Family Emission Limit (FEL)" means an emission level that is declared by the manufacturer to serve in lieu of an emission standard for certification purposes and for the averaging, banking, and trading program, as defined in title 13, California Code of Regulations, section 2423 or 40 CFR Parts 89.112(d) or 1039.101, as they existed on April 27, 2010.
- (325) "Ferry" means a harbor craft having provisions only for deck passengers or vehicles, operating on a short run, on a frequent schedule between two points over the most direct water route, and offering a public service of a type normally attributed to a bridge or tunnel.
- (336) "Fishing Vessel" means a self-propelled vessel that is either:
- (A) a commercial vessel dedicated to the search for, and collection of, fish for the purpose of sale at market or directly to a purchaser(s), or
 - (B) a charter vessel used for hire by the general public and dedicated to the search for and collection of, fish for the purpose of general consumption.
- (347) "Fleet" means the total number of harbor craft owned, rented, or leased by an owner or operator in an air district or distinct locale within Regulated California Waters or the statewide population of a specific vessel type.
- (358) "Fuel Additive" means any substance designed to be added to fuel or fuel systems or other engine-related engine systems such that it is present in-cylinder during combustion.
- (369) "Harbor Craft" (also called "Commercial Harbor Craft") means any private, commercial, government, or military marine vessel including, but not limited to, passenger ferries, excursion vessels, tugboats, ocean-going tugboats, towboats, push-boats, crew and supply vessels, work boats, pilot vessels, supply boats, fishing vessels, research vessels, U.S. Coast Guard vessels, hovercraft, emergency response harbor craft, and barge vessels that do not otherwise meet the definition of ocean-going vessels or recreational vessels.
- (3740) "Homeport" means the port in which a vessel is registered or permanently based.
- (3841) "In-Use Harbor Craft" means a harbor craft that is not a new harbor craft.
- (3942) "In-Use Marine Engine" means a marine engine that is not a new marine engine.

- (403) "Lease" means a contract by which the owner (lessor) of a property, such as a vessel or engine, grants the right to use or occupy the property to another person (lessee) for a specified term and for a specified rent.
- (444) "Level" means, unless the context requires otherwise, one of three categories of ARB-verified diesel emission control strategies as set forth in title 13, CCR, section 2700 et seq.: Level 1 means the strategy reduces engine diesel PM emissions by between 25 and 49 percent; Level 2 means the strategy reduces engine diesel PM emissions by between 50 and 84 percent; and Level 3 means the strategy reduces engine diesel PM emissions by 85 percent or greater, or reduces engine diesel PM emissions to less than or equal to 0.01 grams per brake horsepower-hour (g/bhp-hr).
- (425) "Low-Use" means the operation of any compression-ignition engine associated with a harbor craft vessel for less than ~~300~~the total annual hours of operation in Regulated California Waters, based on the immediately preceding calendar year, that deems it subject to the in-use engine requirements.
- (436) "Military Tactical Support" means a vessel that meets military specifications, is owned by the U.S. Department of Defense, the U.S. Coast Guard, the U.S. Military services or its allies, and is used in combat, combat support, combat services support, tactical or relief operations or training for such operations.
- (447) "Model Year" means the diesel engine manufacturer's annual production period, which includes January 1st of a calendar year, or if the manufacturer has no annual production period, the calendar year.
- ~~(45) "Multipurpose Harbor Craft" means a harbor craft that serves as a ferry, excursion vessel, tugboat, or towboat but is also used as a work, crew and supply, pilot, fishing, supply, or other vessel.~~
- (468) "New Harbor Craft" means a harbor craft for which both of the following criteria are true:
- (A) it is built, or its keel is laid, on or after January 1, 2009, and
 - (B) the equitable or legal title to the harbor craft has never been transferred to an ultimate purchaser.

Where the equitable or legal title to the harbor craft is not transferred to an ultimate purchaser prior to the harbor craft being placed into service, the harbor craft ceases to be new when it is placed into service. A harbor craft is placed into service when it is used for its functional purposes.

- (479) "New Marine Engine" means a marine engine for which both of the following criteria are true:

- (A) it is manufactured or imported on or after January 1, 2009, and
- (B) the equitable or legal title to the engine has never been transferred to an ultimate purchaser.

Where the equitable or legal title to the engine is not transferred to an ultimate purchaser prior to the engine being placed into service, the engine ceases to be new when it is placed into service. An engine is placed into service when it is used for its functional purposes.

- (4850) “Nitrogen Oxides or Oxides of Nitrogen (NO_x)” means compounds of nitric oxide (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen, which are typically created during combustion processes and are major contributors to smog formation and acid deposition.
- (4951) “Non-Methane Hydrocarbons (NMHC)” means the sum of all hydrocarbon (HC) air pollutants except methane.
- (502) “Ocean-going Vessel” means a commercial, government, or military vessel meeting any one of the following criteria:
 - (A) a vessel greater than or equal to 400 feet in length overall (LOA) as defined in 50 CFR § 679.2, as adopted June 19, 1996;
 - (B) a vessel greater than or equal to 10,000 gross tons (GT ITC) per the convention measurement (international system) as defined in 46 CFR 69.51-.61, as adopted September 12, 1989; or
 - (C) a vessel propelled by a marine compression-ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.
- (543) “Operate” means steering or otherwise running the vessel or its functions while the vessel is underway, moored, anchored, or at dock.
- (524) “Own” means having all the incidents of ownership, including the legal title, whether or not that person lends, rents, or pledges the vessel; having or being entitled to the possession of a vessel as the purchaser under a conditional sale contract; or being the mortgagor of a vessel.
- (535) “Particulate Matter (PM)” means any airborne finely divided material, except uncombined water, which exists as a liquid or solid at standard conditions (e.g., dust, smoke, mist fumes, or smog).
- (56) “Permanently affixed to a harbor craft” means the engine, its fueling system, or its exhaust system is welded or otherwise physically connected to the vessel or other vessel system in such a way that the engine cannot be easily removed for use in a land-based application without modifications.
- (547) “Person” includes all of the following:

- (A) any person, firm, association, organization, partnership, business trust, corporation, limited liability company, or company;
 - (B) any state or local governmental agency or public district, or any officer or employee thereof; and
 - (C) the United States or its agencies, to the extent permitted by federal law.
- (558) "Pilot Vessel" means a vessel designed for, but not limited to, the transfer and transport of maritime pilots to and from ocean-going vessels while such vessels are underway.
- (569) "Port" means any facility used for water-borne commerce. "Port" includes, but is not limited to, facilities also known as "marine terminals" and "roadsteads."
- (5760) "Portable CI Engine" means a compression-ignition (CI) engine designed and capable of being carried or moved from one location to another. Indicators of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. Portable engines are not self-propelled.
- (5861) "Portable Engine-Equipment Registration Program (PERP)" means the statewide program designed to promote the use of clean portable engines in California, as provided for in title 13, CCR, sections 2450 through 2465. Once registered in the program, engines and equipment units can operate throughout the State without being required to obtain individual permits from each air pollution control or air quality management district in which they operate.
- (5962) "Pre-Tier 1 Engine" means an engine that was built before the effective date of U.S. EPA's Tier 1 marine engine emission standards (Tier 1 marine standards), as set forth in 40 CFR 94., or U.S. EPA's Tier 1 emission standards for nonroad compression ignition engines, as set forth in 40 CFR 89.
- (603) "Propulsion Engine" means an engine that provides power to move a vessel through the water or directs the movement of a vessel.
- (614) "Purchase Date" means the date shown on the front of the cashed check; the date of the financial transaction; or the date on the engine or harbor craft purchase, rental, or lease agreement, whichever is earliest.
- (625) "Push Boat" means any self-propelled vessel engaged in or intending to engage in the service of pulling, pushing, or hauling along side barges or other vessels, or any combination of pulling, pushing, or hauling along side barges or other vessels. "Push boats" is interchangeable with "towboats."
- (636) "Recreational Vessel" means a vessel that is intended by the vessel manufacturer to be operated primarily for pleasure or leased, rented, or chartered to another for the latter's pleasure, excluding the following vessels: (1) vessels of

less than 100 gross tons that carry more than 6 passengers, (2) vessels of 100 gross tons or more that carry one or more passengers, and (3) vessels used solely for competition.

(647) “Registered Historic Vessel” means a vessel listed in the National Register of Historic Places pursuant to the National Historic Preservation Act of 1966 (16 U.S.C. 470).

(658) “Regulated California Waters” means all of the following:

- (A) all California internal waters;
- (B) all California estuarine waters;
- (C) all California ports, roadsteads, and terminal facilities (collectively “ports”);
- (D) all waters within 3 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive;
- (E) all waters within 12 nautical miles of the California baseline, starting at the California-Oregon border and ending at the California-Mexico border at the Pacific Ocean, inclusive;
- (F) all waters within 24 nautical miles of the California baseline, starting at the California-Oregon border to 34.43 degrees North, 121.12 degrees West; inclusive; and
- (G) all waters within the area, not including any islands, between the California baseline and a line starting at 34.43 degrees North, 121.12 degrees West; thence to 33.50 degrees North, 118.58 degrees West; thence to 32.65 degrees North, 117.81 degrees West; and ending at the California-Mexico border at the Pacific Ocean, inclusive.

(69) “Regulated In-Use Vessel” means a vessel that operates as one of the vessel categories subject to in-use engine standards in subsection (e)(6).

(6670) “Rent” means payment for the use of harbor craft or diesel engine for a specified term.

(6771) “Retirement” means the act of taking an engine or harbor craft out of service (i.e., to “retire”) so that it subsequently never again operates in any of the Regulated California Waters. “Retirement” does not include an engine or harbor craft that is sold for use outside California then subsequently operated in any of the Regulated California Waters.

(6872) “SCAQMD” means the South Coast Air Quality Management District, as defined in Health and Safety Code section 40410 et seq. and described in section 60104, title 17, California Code of Regulations, and shall include all waters subject to the jurisdiction of the SCAQMD.

- (~~69~~73) "Supply Vessel" means a self-propelled vessel used for carrying supplies to and from off-shore and in-harbor locations including, but not limited to, off-shore work platforms, construction sites, and other vessels.
- (74) "Swing Engine" means an engine maintained at a dockside location for use in a vessel or fleet of vessels which can be installed as a replacement for an engine that has been removed from a vessel for repair or routine maintenance. The removed engine may then become the swing engine once repair or maintenance has been completed.
- (~~70~~5) "Take Out of Service" means the act of dry-docking, mooring, anchoring, or otherwise tying up a harbor craft at dock to conduct maintenance, repairs, replacements, or upgrades such that the vessel cannot be operated in Regulated California Waters while such acts are conducted on the vessel.
- (74~~6~~) "Tank Barge" means a non-self-propelled vessel constructed or adapted primarily to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue.
- (72~~7~~) "Tank Vessel" or "Tanker" means a self-propelled vessel constructed or adapted primarily to carry, or that carries, oil or hazardous material in bulk as cargo or cargo residue.
- (73~~8~~) "Temporary emergency rescue/recovery vessel" means a self-propelled vessel that performs duties including, but not limited to, policing harbor areas, fire fighting, rescue operations, oil spill prevention, and on-water oil removal whose homeport is not within California and is brought into California for the immediate use of emergency rescue or recovery and returns to its homeport outside of California at the conclusion of its emergency rescue/recovery mission.
- (~~74~~79) "Temporary replacement vessel" means a self-propelled vessel that is brought into service to temporarily replace a California vessel that has been temporarily taken out of service. For purposes of this section, "temporary replacement vessel" includes only the following:
- (A) vessels that are used in the SCAQMD but have a homeport in California outside of the SCAQMD; and
 - (B) vessels that are used anywhere in California, including the SCAQMD, but have a homeport outside of California.
- (~~75~~80) "Tier 1 Marine Engine Emission Standards (Tier 1 marine standards)" means the U.S. EPA marine engine Tier 1 emission standards, as promulgated by U.S. EPA and set forth in "Control of Emissions of Air Pollution from New Marine Compression-Ignition Engines at or Above 37 kW" (64 Federal Register (FR) 73299-73373, December 29, 1999)(40 CFR Part 94), both of which are incorporated herein by reference. The standards from 40 CFR Part 94 are

summarized in Table 1. In the event of a conflict between a Tier 1 marine standard in this section and its corresponding standard in 40 CFR Part 94, the standard in 40 CFR Part 94 controls.

Table 1: U.S. EPA Tier 1 Marine Engine Emission Standards

Category	Power (kilowatt (kW)) & Displacement (liters/cylinder (l/cyl))	Engine Speed (Revolutions per minute (rpm))	Tier 1 Model Year	PM (g/bhp-hr)	NO _x +HC (g/bhp-hr)*	CO (g/bhp-hr)
1, 2, 3, including Recreational	≥ 37 kW & ≥ 2.5 l/cyl	rpm ≥ 2000	2004	-	7.3	-
		130 ≤ rpm < 2000	2004	-	33.57 x rpm ^{-0.2}	-
		rpm < 130	2004	-	12.7	-

(40 CFR Part 94)

*converted emission standards from 40 CFR 94, which are expressed in grams per kilowatt-hour (g/kW-hr) to g/hp-hr by the following: g/kW-hr * (0.746) = g/hp-hr.

(7681) “Tier 2 Marine Engine Emission Standards (Tier 2 marine standards)” means the U.S. EPA marine engine Tier 2 emission standards, as promulgated by U.S. EPA and set forth in “Control of Emissions of Air Pollution from New Marine Compression-Ignition Engines at or Above 37 kW” (64 FR 73299-73373, December 29, 1999)(40 CFR Part 94), both of which are incorporated herein by reference. In the event of a conflict between a Tier 2 marine standard in this section and its corresponding standard in 40 CFR Part 94, the standard in 40 CFR Part 94 controls.

Table 2: U.S. EPA Tier 2 Marine Engine Emission Standards for NO_x + HC, PM, and CO

Category	Displacement (Disp.) (liters/cylinder)	Date	NO _x +HC (g/bhp-hr)*	PM (g/bhp-hr)*	CO (g/bhp-hr)*
1	Disp. < 0.9 and power ≥ 50 hp*	2005	5.6	0.30	3.7
	0.9 ≤ Disp. < 1.2	2004	5.4	0.22	3.7
	1.2 ≤ Disp. < 2.5	2004	5.4	0.15	3.7
	2.5 ≤ Disp. < 5.0	2007	5.4	0.15	3.7
2	5.0 ≤ Disp. < 15	2007	5.8	0.20	3.7
	15 ≤ Disp. < 20 (power < 4424 hp*)	2007	6.5	0.37	3.7
	15 ≤ Disp. < 20 (power ≥ 4424 hp*)	2007	7.3	0.37	3.7
	20 ≤ Disp. < 25	2007	7.3	0.37	3.7
	25 ≤ Disp. < 30	2007	8.2	0.37	3.7

(40 CFR Part 94)

*converted emission standards and maximum power rating from 40 CFR 94, which are expressed in g/kW-hr and kW to g/hp-hr and hp, respectively, by the following: g/kW-hr (0.746) = g/hp-hr or kW (1.34) = hp

(7782) “Tier 3 Marine Engine Emission Standards (Tier 3 marine standards)” means the U.S. EPA marine engine Tier 3 emission standards, as promulgated by U.S. EPA and set forth in “Final Rule: Control of Emissions of Air Pollution from Locomotive

and Marine Compression-Ignition Engines Less Than 30 Liters Per Cylinder” (73 FR 25245 et seq., May 6, 2008) (40 CFR Part 1042), both of which are incorporated herein by reference. The standards from 40 CFR Part 1042 are summarized in Table 3, Table 4, and Table 5. In the event of a conflict between a Tier 3 marine standard in this section and its corresponding standard in 40 CFR Part 1042, the standard in 40 CFR Part 1042 controls. [Note: No Tier 3 marine standards apply for commercial Category 1 engines at or above 3700 kW. See “Tier 4 Marine Engine Emission Standards” for the standards that apply to these engines.]

Table 3: U.S. EPA Tier 3 Marine Standards for Marine Diesel Category 1 Commercial Standard Power Density Engines below 3700 kW

Rated kW	L/Cylinder	PM g/bhp-hr ^e	NOx + HC ^d g/bhp- hr ^e	Model Year
19 to < 75 kW	<0.9 ^a	0.22	5.6	2009
		0.22 ^b	3.5 ^b	2014
75 to <3700 kW	<0.9	0.10	4.0	2012
	0.9 - <1.2	0.09	4.0	2013
	1.2 - <2.5	0.08 ^c	4.2	2014
	2.5 - <3.5	0.08 ^c	4.2	2013
	3.5 - <7.0	0.08 ^c	4.3	2012

(a) <75 kW engines at or above 0.9 L/cylinder are subject to the corresponding 75-3700 kW standards.

(b) Option: 0.15 g/bhp-hr PM / 4.3 g/bhp-hr NOx+HC in 2014.

(c) This standard level drops to 0.07 g/bhp-hr in 2018 for <600 kW engines.

(d) Tier 3 NOx+HC standards do not apply to 2000-3700 kW engines.

(e) Converted emission standards from 40 CFR part 1042, which are expressed in g/kW-hr to g/hp-hr by the following: g/kW-hr (0.746) = g/hp-hr.

Table 4: U.S. EPA Tier 3 Marine Standards for Marine Diesel Category 1 Recreational and Commercial High Power Density Engines below 3700 kW

Rated kW	L/Cylinder	PM g/bhp- hr ^c	NOx + HC g/bhp- hr ^c	Model Year
19 to <75 kW	<0.9 ^a	0.22	5.6	2009
		0.22 ^b	3.5 ^b	2014
75 to <3700 kW	<0.9	0.11	4.3	2012
	0.9 - <1.2	0.10	4.3	2013
	1.2 - <2.5	0.09	4.3	2014
	2.5 - <3.5	0.09	4.3	2013
	3.5 - <7.0	0.08	4.3	2012

- (a) <75 kW engines at or above 0.9 L/cylinder are subject to the corresponding 75-3700 kW standards.
- (b) Option: 0.15 g/bhp-hr PM / 4.3 g/bhp-hr NOx+HC in 2014.
- (c) Converted emission standards from 40 CFR part 1042, which are expressed in g/kW-hr to g/bhp-hr by the following: g/kW-hr (0.746) = g/bhp-hr.

Table 5: U.S. EPA Tier 3 Marine Standards for Marine Diesel Category 2 Engines below 3700 kW^{a,b}

L/Cylinder	Rated kW	PM g/bhp- hr ^c	NOx+HC g/bhp- hr ^c	Model Year
7 - <15	<2000	0.10	4.6	2013
	≥2000	0.10	5.8	2013
15 - <20 ^a	<2000	0.25	5.2	2014
20 - <25 ^a	<2000	0.20	7.3	2014
25 - <30 ^a	<2000	0.20	8.2	2014

- (a) No Tier 3 marine standards apply for Category 2 engines with per-cylinder displacement above 15.0 liters if maximum engine power is at or above 2000 kW. See “Tier 4 Marine Engine Emission Standards” for the standards that apply for these engines.
- (b) For Category 2 engines at or above 1400 kW, optional Tier 3 and Tier 4 standards are available with some manufacturer restrictions, PM / NOx+HC at 0.10 / 5.8 g/bhp-hr in 2012, with Tier 4 standards in 2015.
- (c) Converted emission standards from 40 CFR part 1042, which are expressed in g/kW-hr to g/bhp-hr by the following: g/kW-hr * (0.746) = g/bhp-hr.

(7883) “Tier 4 Marine Engine Emission Standards (Tier 4 marine standards)” means the U.S. EPA marine engine Tier 4 emission standards, as promulgated by U.S. EPA and set forth in “Final Rule: Control of Emissions of Air Pollution from Locomotive and Marine Compression-Ignition Engines Less Than 30 Liters Per Cylinder” (73 FR 25245 et seq., May 6, 2008) (40 CFR Part 1042), both of which are incorporated herein by reference. Table 6 summarizes the Tier 4 marine standards from 40 CFR Part 1042. In the event of a conflict between a Tier 4 marine standard in this section and its corresponding standard in 40 CFR Part 1042, the marine standard in 40 CFR Part 1042 controls.

**Table 6: U.S. EPA Tier 4 Marine Standards for Marine Diesel
Category 1 and Category 2 Engines above 600 kW**

Rated kW	L/Cylinder	PM g/bhp- hr ^a	NOx g/bhp- hr ^a	HC g/bhp- hr ^a	Model Year
At or above 3700 kW	<15.0	0.09	1.3	0.14	2014 ^b
	15.0 to <30.0	0.19	1.3	0.14	2014 ^b
	all	0.04	1.3	0.14	2016 ^b
2000 to <3700 kW	all	0.03 ^d	1.3	0.14	2016 ^{b,c,d}
1400 to <2000 kW	all	0.03	1.3	0.14	2016 ^{b,c}
600 to <1400 kW	all	0.03	1.3	0.14	2017

- (a) Converted emission standards from 40 CFR part 1042, which are expressed in g/kW-hr to g/bhp-hr by the following: $\text{g/KW-hr} (0.746) = \text{g/bhp-hr}$
- (b) Optional compliance start dates may be used within these model years; see 40 CFR part 1042.
- (c) For Category 2 engines at or above 1400 kW, optional Tier 3 and Tier 4 marine standards are available with some manufacturer restrictions, PM / NOx+HC at 0.10 / 5.8 g/bhp-hr in 2012, with Tier 4 marine standards in 2015.
- (d) The Tier 3 PM standards continue to apply for Category 1 and Category 2 engines with per-cylinder displacements below 15.0 liters in model years 2014 and 2015 only. For Category 2 engines with per-cylinder displacement at or above 15.0 liters, the PM standard is 0.25 g/bhp-hr for engines at or above 2000 kW and below 3300 kW, and 0.20 g/bhp-hr for engines at or above 3300 kW and below 3700 kW, in model years 2014 and 2015 only.

(84) “Tier 1 Off-Road or Nonroad Emission Standards (Tier 1 off-road standards)” means an engine subject to the Tier 1 new engine emission standards in Title 13, CCR, Section 2423(b)(1)(A) or Title 40, CFR, Part 89.112(a) as they existed on April 27, 2010, both of which are incorporated herein by reference. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 1 Family Emission Limits (FEL) listed in Title 13, CCR, Section 2423(b)(2)(A) or Title 40, CFR, Part 89.112(d), as they existed on April 27, 2010, both of which are incorporated herein by reference.

(85) “Tier 2 Off-Road or Nonroad Emission Standards (Tier 2 off-road standards)” means an engine subject to the Tier 2 new engine emission standards in Title 13, CCR, Section 2423(b)(1)(A) or Title 40, CFR, Part 89.112(a) as they existed on April 27, 2010, both of which are incorporated herein by reference. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 2 FEL listed in Title 13, CCR, Section 2423(b)(2)(A) or

Title 40, CFR, Part 89.112(d), as they existed on April 27, 2010, both of which are incorporated herein by reference.

- (86) “Tier 3 Off-Road or Nonroad Emission Standards (Tier 3 off-road standards)” means an engine subject to the Tier 3 new engine emission standards in Title 13, CCR, Section 2423(b)(1)(A) or Title 40, CFR, Part 89.112(a), as they existed on April 27, 2010, both of which are incorporated herein by reference. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 3 FEL listed in Title 13, CCR, Section 2423(b)(2)(A) or Title 40, CFR, Part 89.112(d), as they existed on April 27, 2010, both of which are incorporated herein by reference.
- (87) “Final Tier 4 Off-Road or Nonroad Emission Standards” means an engine subject to the final after-treatment-based Tier 4 emission standards in Title 13, CCR, Section 2423(b)(1)(B) or Title 40, CFR, Part 1039.101, as they existed on April 27, 2010, both of which are incorporated herein by reference. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in Title 13, CCR, Section 2423(b)(2)(B) or Title 40, CFR, Part 1039.101, as they existed on April 27, 2010, both of which are incorporated herein by reference.
- (88) “Interim Tier 4 Off-Road or Nonroad Emission Standards” means an engine subject to the interim Tier 4 emission standards (also known as transitional) in Title 13, CCR, Section 2423(b)(1)(B) or Title 40, CFR, Part 1039.101, as they existed on April 27, 2010, both of which are incorporated herein by reference. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in Title 13, CCR, Section 2423(b)(2)(B) or Title 40, CFR, Part 1039.101, as they existed on April 27, 2010, both of which are incorporated herein by reference.
- ~~(7989)~~ (8090) “Total Hydrocarbons (THC)” or “Hydrocarbons (HC)” means the total mass of open chain and cyclic hydrocarbon molecules.
- ~~(8090)~~ (8191) “Towboat” means any self-propelled vessel engaged in or intending to engage in the service of pulling, pushing, or hauling along side barges or other vessels, or any combination of pulling, pushing, or hauling along side barges or other vessels.
- ~~(8191)~~ (8491) “Tugboat” means any self-propelled vessel engaged in, or intending to engage in, the service of pulling, pushing, maneuvering, berthing, or hauling along side other vessels, or any combination of pulling, pushing, maneuvering, berthing or hauling along side such vessels in harbors, over the open seas, or through rivers and canals. Tugboats generally can be divided into three groups: harbor or short-haul tugboats, ocean-going or long-haul tugboats, and barge tugboats. “Tugboat” is interchangeable with “towboat” and “push boat” when the vessel is used in conjunction with barges.

(8292)“Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (Verification Procedure)” means the ARB regulatory procedure codified in title 13, CCR, commencing with section 2700, which is incorporated herein by reference, that engine manufacturers, sellers, owners, or operators may use to verify the reductions of diesel PM or NO_x from in-use diesel engines through the use of a particular diesel emission control strategy.

(8393)“Verified Diesel Emission Control Strategy (VDECS)” means an emission control strategy, designed primarily for the reduction of diesel PM emissions, which has been verified pursuant to the “Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines” in title 13, CCR, commencing with section 2700. VDECS can be verified to achieve Level 1 diesel PM reductions (25-49 percent), Level 2 diesel PM reductions (50-84 percent), or Level 3 diesel PM reductions (85 percent or greater). VDECS may also be verified to achieve NO_x reductions.

(8494)“Vessel” or “Marine Vessel” means any tugboat, tanker, freighter, passenger ship, barge, or other boat, ship, or watercraft, except those used primarily for recreation.

(8595)“Work Boat” means a self-propelled vessel that is used to perform duties such as fire/rescue, law enforcement, hydrographic surveys, spill/response, research, training, and construction (including drilling).

e) *Fuel Use and Engine Emission Requirements.*

[Note: The plain English narrative in this overview is intended as a convenient guide for the reader and in no way adds, deletes, modifies, or otherwise affects the legal requirements and substantive provisions specified in subsection (e) or any other part of this section. Subsection (e) sets forth the various fuel and emission requirements for harbor craft subject to this regulation, and can be broken down as follows:

- Subsection (e)(1) specifies low sulfur fuel use requirements that apply to all harbor craft, new and in-use.
- Subsection (e)(2) specifies the requirement for installing hour-meters on all harbor craft, new and in-use.
- Subsection (e)(3) establishes requirements that apply to transactions involving new engines to be installed on in-use vessels, including a limited 6-month “sell-through” provision for non-complying engines, and engine replacement in cases where a compliant engine meeting the required physical or performance characteristics is not available.
- Subsection (e)(4) sets forth requirements that apply to newly acquired new harbor craft, including ferries.

- Subsection (e)(5) sets forth requirements that apply only to newly acquired new ferries, above and beyond those established in subsection (e)(4). These provisions include requirements for applying Best Available Control Technology (BACT) to new ferries and their engines.
- Subsection (e)(6) is the key provision of this regulation, as it achieves emission reductions by requiring the eventual replacement or cleanup of engines in the fleet of in-use ferries, excursion vessels, tugboats, towboats, push boats, crew and supply vessels, and multipurpose harbor craft barge and dredge vessels. This subsection requires that owners and operators eventually replace or otherwise bring into compliance with the specified engine standards all of their pre-Tier 1 and Tier 1-certified engines in their in-use vessels by the dates shown in the specified compliance schedules. The compliance dates are designed to clean up the fleet's oldest and dirtiest engines first, while giving more time for relatively newer, Tier 1 engines to be upgraded or replaced. Vessels (ferries, excursion vessels, tugboats, and towboats) with their homeport in the SCAQMD have an accelerated compliance schedule to reflect that district's greater need for expedited emission reductions. The compliance schedules are grouped by vessel type, location of the vessel's homeport, the engine's model year, and the engine's annual hours of operation.
- Subsection (e)(6)(E) provides for a limited set of circumstances under which the E.O. may grant short extensions to the compliance dates if warranted.]

~~(1) All Harbor Craft Low Sulfur Fuel Use Requirement.~~

~~Beginning January 1, 2009, a person subject to this section may only fuel a diesel engine on a harbor craft with one of the following:~~

- ~~(A) CARB diesel fuel; or~~
- ~~(B) an alternative diesel fuel as defined in subsection (d)(2); or~~
- ~~(C) any alternative diesel fuel that does not meet subsection (e)(1)(B) above but is certified by CARB as meeting the requirements of the Verification Procedure; or~~
- ~~(D) CARB diesel fuel used with fuel additives that meet the requirements of the Verification Procedure; or~~
- ~~(E) any combination of subsection (e)(1)(A) through (D) above; or~~

~~(F) if a harbor craft subject to this section is traveling from a port located outside of California, and that port does not have any fuels listed in subsections (e)(1)(A) through (E), that vessel's diesel engines can be fueled with either: U.S. EPA on-road diesel fuel meeting the specifications contained in 40 CFR §§ 80.500 et seq., as they existed on April 27, 2010, or U.S. EPA nonroad diesel fuel meeting the specifications contained in 40 CFR §80.29 as it existed on April 27, 2010, and 69 FR 38958 (June 29, 2004). The vessel owner or operator must retain records documenting the fuel purchase, the location and the name of~~

~~the non-California port, and its lack of availability of fuels listed in subsections (e)(1)(A) through (E) on-board the vessel for a minimum of one year after the purchase of the fuel, and must make such records available upon the request of the Executive Officer.~~

(2) *All Harbor Craft – Installation and Use of Non-Resettable Hour Meters.*

Beginning January 1, 2009, a person subject to this section may not operate a harbor craft without an installed and properly operating, non-resettable hour meter, which accurately measures the number of hours an engine operates. The hour meter must be installed on each diesel engine on the vessel in a manner that allows reasonable personnel access to the hour meter without impediment.

(3) *All In-Use Harbor Craft – Requirements for Newly Acquired Engines.*

Beginning January 1, 2009, a person subject to this section may not sell, purchase, offer for sale, lease, rent, import, or otherwise acquire a new or in-use diesel engine for an in-use harbor craft, which is intended to operate or actually operates in any of the Regulated California Waters, unless that engine on the date of acquisition:

- (A) is certified to meet the Tier 2 or Tier 3 marine standards in effect on that date for a new engine of the same power rating and displacement. The newly acquired engine is not required to meet the Tier 4 marine standards unless it is replacing an engine on the in-use vessel that was certified as meeting Tier 4 marine standards. Engines certified to meet the Tier 2, Tier 3, or interim Tier 4 off-road standards in effect on the date of acquisition for a new engine of the same power rating and displacement may only be acquired for use as an auxiliary or propulsion engine on harbor craft if the engine or vessel manufacturer has complied with 40 CFR § 1042.605 (Marinized land-based engines already certified to other standards for nonroad or heavy-duty highway engines for marine use), as it existed on April 27, 2010; or
- (B) is newly acquired within the allowable 6 month “sell-through” period, as set forth in this paragraph. For purposes of this paragraph only, the allowable sell-through period runs through 6 months after the date the Tier 2, Tier 3, or Tier 4 marine standards or Tier 3, interim Tier 4, or final Tier 4 off-road standards have come into effect for a new engine of the same power rating and displacement as the engine being replaced on the in-use vessel. Engines that are subsequently sold, supplied, offered for sale, or otherwise newly acquired after the 6 month sell-through period are subject to the requirements specified in paragraph (A) of this subsection, even if the engine was previously newly acquired within the 6 month sell-through period; or

(C) is replacing an engine that is non-functioning due to equipment failure, and the E.O. has determined, pursuant to the provisions of 40 CFR § 1042.615 engine replacement exemption, as it existed on April 27, 2010, that no engine certified to the current standards is produced by any manufacturer with the appropriate physical or performance characteristics to repower the vessel. In such event, an alternate engine may be acquired for the replacement. Pursuant to 40 CFR § 1042.615, a separate determination, addressing each tier of emission standards that is more stringent than the emission standards for the engine being replaced must be made. For example, if the engine being replaced was built before the Tier 2 standards applied, and engines of that size are currently subject to Tier 3 standards, a person must consider whether any Tier 2 or Tier 3 engines have the appropriate physical and performance characteristics for replacing the old engine. If a Tier 2 engine is determined to have the appropriate physical and performance characteristics, it may be selected as the replacement engine. Documentation of these determinations must be supplied to the E.O. and the E.O.'s determination must be obtained before an engine replacement is made pursuant to this provision.

(4) All New Harbor Craft (Including All New Ferries) – Requirements for Newly Acquired Vessels.

Beginning January 1, 2009, a person subject to this section may not sell, purchase, offer for sale, lease, rent, import, or otherwise acquire a new harbor craft for use in any of the Regulated California Waters unless each of the diesel propulsion and auxiliary engines on the vessel meets the applicable Tier 2, Tier 3, or Tier 4 marine standards in effect on the date of vessel acquisition. Auxiliary or propulsion engines meeting the applicable Tier 2, Tier 3, interim Tier 4, or final Tier 4 off-road standards in effect on the date of vessel acquisition may be sold, purchased, offered for sale, leased, rented, imported, or otherwise acquired for use if the engine or vessel manufacturer has complied with 40 CFR §1042.605 (Marinized land-based engines already certified to other standards for nonroad or heavy-duty highway engines for marine use), as it existed on April 27, 2010. Diesel propulsion engines in new ferries with a capacity to transport more than 75 passengers in Regulated California Waters must also meet the requirements specified in subsection (e)(5) below. The person must also meet the additional requirements set forth in subsection (e)(5) below for diesel propulsion engines in newly acquired new ferries.

(5) *Selected New Ferries Only – Additional Requirements for All Newly Acquired Propulsion Engines.*

- (A) Beginning January 1, 2009, ~~any person subject to this section may not sell, purchase, offer for sale, import, or otherwise acquire a new ferry with the capacity to transport 75 or more passengers for use in any of the Regulated California Waters unless each propulsion diesel engine on the vessel: who owns or operates a new ferry with the capacity to transport 75 or more passengers and that is used in any of the Regulated California Waters must demonstrate that each diesel propulsion engine that is certified to either the Tier 2 or Tier 3 marine standards will be operated in conjunction with the use of Best Available Control Technology (BACT) as determined and pre-approved by the E.O. pursuant to this provision.~~
- ~~1. meets either the Tier 2 or Tier 3 standards that are in effect on the date of vessel acquisition; and~~
 - ~~2. will be operated only in conjunction with the use of Best Available Control Technology (BACT), as determined and pre-approved by the E.O. pursuant to this provision.~~
- (B) ~~In lieu of installing or using BACT pursuant to paragraph (A)2 above, the person may comply with paragraph (A)2 by installing on the new ferry a propulsion engine(s) that is certified to the Tier 4 standards, if a Tier 4-certified engine is available at the time that the new ferry is delivered. If no Tier 4-certified engines are available at the time of ferry delivery, the person must meet the provisions of paragraphs (A)1 and (A)2.~~
- (C)(B) For purposes of this section, “BACT” is the diesel emission control strategy (DECS), whether verified or unverified pursuant to 13 CCR section 2700 et seq., that is determined by the E.O. as meeting all of the following criteria:
1. it provides or is expected to continuously provide the greatest reduction feasible of NOx or diesel PM when used with the ferry’s propulsion diesel engine;
 2. the use of BACT does not result in an increase of 10 percent or more of any air pollutant, including NOx and diesel PM, relative to the engine’s emissions of that air pollutant without the use of BACT; and
 3. either the DECS manufacturer or an authorized dealer of the DECS determines or otherwise agrees with the E.O. that use of the DECS on or with the new ferry’s propulsion engine(s) would not invalidate or otherwise adversely affect the propulsion engine’s original warranty.

For purposes of this section, DECS may include, but is not ~~be~~ limited to, exhaust treatment controls and the use of alternative fuels or fuel additives.

~~(D)~~ (C) The E.O. shall determine the appropriate level of BACT and specify such BACT in an Executive Order granting such approval. Applications to comply with the requirements of paragraph (A)2 by using BACT must follow the application and review procedure set forth below:

1. Application Process.

For all new ferries for which the keel is laid on or after January 1, 2009, the application for BACT approval must be submitted in writing to the E.O. for evaluation before the keel is laid. The BACT application must contain, at a minimum, the following information:

- a. the applicant company's name, address, and contact information;
- b. information specific to the harbor craft and engine(s) on which BACT will be used, including the vessel name and identification number(s); engine make, model, and serial numbers; and all other information that uniquely identify the engine;
- c. certification documentation, engineering calculations, emissions test data, or other information that establishes the diesel PM and NO_x emissions of the engine in combination with the proposed BACT. Emissions and emission reduction estimates must include both diesel PM and NO_x emissions and be expressed in grams per brake horsepower-hour (g/bhp-hr) unless otherwise specified by the E.O. Information submitted pursuant to this provision will be used as follows:
 - i. The E.O. shall use the information to compare the emissions resulting from the proposed use of BACT with the emissions quantified in BACT determinations previously approved by the E.O.;
 - ii. If there are no previous BACT determinations available for comparison, the E.O. shall use ARB staff's best engineering judgment to determine if the proposed BACT provides the greatest feasible reduction of diesel PM or NO_x; and
 - iii. The E.O. may require the applicant to submit additional emissions data for other air pollutants if the E.O. believes that the proposed use of BACT may increase any air pollutant by 10 percent or more relative to the engine emissions without the proposed BACT; and

- d. the proposed recordkeeping, reporting, monitoring, and testing procedures that the applicant plans to use to demonstrate continued effectiveness of the BACT.

2. E.O. Review and Final Decision-Making Process.

- a. Within 15 days after receiving a BACT application, the E.O. shall notify the applicant whether the application is deemed sufficiently complete to proceed with further evaluation. If the application is deemed incomplete, the notification must identify the application's deficiencies. The E.O. shall have an additional 15-day period for reviewing each set of documents or information submitted in response to an incomplete determination. Nothing in this subsection prohibits the E.O. from requesting additional information from the applicant, during any part of the BACT application process, which the E.O. determines is necessary to evaluate the application.
- b. Within 30 days of deeming an application complete, the E.O. shall take final action to either approve or deny a BACT application, and the E.O. shall notify the applicant accordingly. If the application is denied or modified, the E.O. shall state the reasons for the denial or modification in the notification. The E.O. shall specify all terms, conditions, and requirements the E.O. believes are necessary for the ferry engine and BACT to operate properly and reduce emissions of air pollutants consistent with this section. The reporting and recordkeeping requirements specific to the use of BACT must include, at a minimum:
 - i. hours of operation for the engine and BACT and fuel usage;
 - ii. usage of any alternative fuels, additives, agents, flow rates, and emission test results;
 - iii. maintenance procedures for the engine(s) and its BACT; and
 - iv. any other measurements or recordings specified by the E.O.

The E.O. shall make the approval/disapproval notification to the applicant and identification of the approved/disapproved BACT available to the public on ARB's internet site.

3. Post-Approval Vessel, Engine, and BACT Operation.

A person subject to this provision who owns or operates a new ferry with the capacity to transport 75 or more passengers and that is used in Regulated California Waters must maintain operating records and other information in the manner and form specified by the E.O. in the BACT approval. ~~The person and~~ must submit to ARB upon request all records and reports created pursuant to this provision, which must be maintained

and retained for ARB inspection a minimum of three years after the records or reports were created.

(6) In-Use Engines and Vessels- Schedules for Meeting Tier 2 and Tier 3 Standards.

- (A) ~~For Pre-Tier 1 and Tier 1 Certified Engines on Ferries, Excursion Vessels, Tugboats, Towboats, Push Boats, and Multipurpose Harbor Craft Only~~ For Pre-Tier 1- and Tier 1- Certified Engines on Ferries, Excursion Vessels, Tugboats, Towboats, Push Boats, Crew and Supply Vessels, and Barge and Dredge Vessels Only.

1. *Applicability.*

This subsection (e)(6) applies to any person who owns, operates, sells, purchases, offers for sale, leases, rents, imports, or otherwise acquires an in-use ferry, excursion vessel, tugboat, towboat, push boat, ~~or multipurpose harbor craft~~ crew and supply vessel, or barge and dredge vessel (in-use regulated category vessel) with a pre-Tier 1- ~~or Tier 1- Tier 1-~~ certified marine or off-road engine for use operating in any one of the above regulated in-use vessel categories for:

- a. a total of 300 hours per calendar year or more if operating in either ferry, excursion vessel, tugboat, towboat, push boat, or crew and supply vessel categories, or
- b. a total of 80 hours per calendar year if operating in either barge or dredge vessel categories

~~in any of the~~ Regulated California Waters. This subsection applies to all such engines on all such vessels.

2. *General Requirement.*

a. After January 1, 2009, a person ~~subject to this provision~~ who owns, operates, sells, purchases, offers for sale, leases, rents, imports, or otherwise acquires an in-use ferry, excursion vessel, tugboat, towboat, or push boat with a pre-Tier 1- or Tier 1-certified marine or off-road engine and that operates in any of the above regulated in-use vessel categories may not own, operate, sell, purchase, offer for sale, lease, rent, import, or otherwise acquire an in-use engine, or a vessel with an in-use engine, unless that engine complies with at least one of the compliance methods set forth in subsection (e)(6)(C) by the applicable compliance date. The compliance methods set forth in subsection (e)(6)(C) involve either replacement of the in-use engine with a cleaner engine or demonstrating that the in-use engine already meets specified standards, as set forth below.

b. After July 1, 2011, a person who owns, operates, sells, purchases, offers for sale, leases, rents, imports, or otherwise acquires an in-use crew and supply vessel, or barge and dredge vessel with a pre-Tier 1- or Tier 1-certified marine or off-road engine and that operates in any of the above regulated in-use vessel categories may not own, operate, sell, purchase, offer for sale, lease, rent, import, or otherwise acquire an in-use engine, or a vessel with an in-use engine, unless that engine complies with at least one of the compliance methods set forth in subsection (e)(6)(C) by the applicable compliance date. The compliance methods set forth in subsection (e)(6)(C) involve either replacement of the in-use engine with a cleaner engine or demonstrating that the in-use engine already meets specified standards, as set forth below.

For purposes of this subsection, “applicable compliance date” is either the compliance date, as set forth in subsection (e)(6)(D) for the in-use engine, or the compliance date from subsection (e)(6)(D) for the in-use engine, as extended pursuant to subsection (e)(6)(E), whichever applies and occurs later.

(B) [Reserved for Future Use]

(C) *Compliance Methods.*

1. *Method C1 – Replacement of the in-use engine with a U.S. EPA certified marine or off-road Tier 2 engine or one with a higher certification level (e.g., Tier 3-certified).*

A person may comply under this method by replacing the in-use engine with an engine certified to Tier 2- 2 or Tier 3-certified marine or off-road engine emission standards as set forth in this paragraph. The replacement engine must meet the U.S. EPA Tier 2 or Tier 3 marine or off-road engine emission standards that would apply to a new engine, of the same size and configuration as the in-use engine, at the time of the applicable compliance date set forth in subsection (e)(6)(D). The replacement engine must meet the provisions of section 93118.5(e)(3).

[Note: For example, if the applicable compliance date is January 1, 2010, and the Tier 2 marine or off-road emission standards would be in effect at that time for a new engine of the same size and configuration as the in-use engine, the replacement would need to meet Tier 2 marine or off-road emission standards. However, if the applicable compliance date is instead January 1, 2013, and the Tier 3 marine or off-road emission standards would be in effect for a new engine of the same size and configuration as the in-use engine, the replacement engine would need to meet Tier 3 marine or off-road emission standards.]

Once the in-use engine has been replaced with an engine that is U.S. EPA-certified to meet Tier 2 or Tier 3 marine or off-road emission standards, as set forth above, the engine is deemed to be in compliance with this subsection (e)(6) and no further replacements of this engine are required under this subsection. Tier 3-certified marine or off-road engines may be used as the replacement engine to comply with this paragraph, even if Tier 4-certified marine or off-road emission engines become available by the applicable compliance date;

2. *Method C2 – Demonstrate to the E.O.’s written satisfaction that the in-use engine already meets the Tier 2 marine standards or Tier 2 off-road standards for auxiliary or propulsion engines greater than 50 hp or less than 75 hp, or greater than 750 hp that apply or would apply to new engines on the date the Tier 2 marine or off-road standards became effective.*
 - a. A person may comply under this method by demonstrating to the E.O.’s written satisfaction that:
 - i. the in-use engine already meets the Tier 2 marine standards or Tier 2 off-road standards for engines greater than 50 hp or less than 75 hp, or greater than 750 hp,
 - ii. which apply to new engines of the same power rating and displacement as the in-use engine.
 - b. This compliance method is available only if the person makes the required demonstration before the date Tier 3 marine or off-road emission standards become effective for new engines of the same size and configuration as the in-use engine. The person may rebuild the in-use engine to a cleaner standard or implement a diesel emission control strategy to aid in meeting these standards. [Note: For example, if the Tier 3 marine or off-road emission standards would have become effective on January 1, 2015 for a new engine of the same size and configuration as the in-use engine, the person would need to provide the Tier 2-compliance demonstration to the E.O.’s written satisfaction by January 1, 2015.]
 - c. For purposes of the demonstration, the person may, upon approval by the E.O., rely on any source of reliable and credible information, including but not limited to, any of the following:
 - i. the results from using the test method specified in section (j) or an alternative method approved by the E.O.;
 - ii. the in-use engine manufacturer’s certification test data or other emissions test data for that in-use engine;

- iii. emissions test data derived from another in-use engine that is configured and used in a substantially similar way to the in-use engine;
- iv. emissions test data used to meet the regulatory requirements of ARB's Verification Procedure for the non-verified emission control strategy implemented; or
- v. emissions test data used to meet the requirements for U.S. EPA certification for systems providing remanufacture to a cleaner standard.

The E.O. may, in his/her sole discretion and based on good engineering judgment, exclude any information he/she determines is not reliable or credible.

3. *Method C3 – Demonstrate to the E.O.'s written satisfaction that the in-use engine already meets the Tier 2 or Tier 3 marine standards or Tier 2 or Tier 3 off-road emission standards for auxiliary or propulsion engines in effect or would be in effect for new engines at the time of the applicable compliance date.*

- a. A person may comply under this method by demonstrating to the E.O.'s written satisfaction that:
 - i. the in-use engine already meets the Tier 2 or Tier 3 marine standards or Tier 2 or Tier 3 off-road emission standards for auxiliary or propulsion engines,
 - ii. which apply to new engines of the same power rating and displacement as the in-use engine,
 - iii. at the time of the applicable compliance date for the in-use engine.
- b. To comply with this method, the person may demonstrate that the in-use engine meets the Tier 3 marine or off-road engine emission standards, even if Tier 4 marine or off-road engine emission standards come into effect by the applicable compliance date. The person may rebuild the in-use engine to a cleaner standard or implement a diesel emission control strategy to aid in meeting these standards.
- c. For purposes of the demonstration, the person may, upon E.O. approval, rely on any source of reliable and credible information, including but not limited to, any of the following:
 - i. the results from using the test method specified in section (j) or an alternative method approved by the E.O.;

- ii. the in-use engine manufacturer's certification test data or other emissions test data for that in-use engine;
- iii. emissions test data derived from another in-use engine that is configured and used in a substantially similar way to the in-use engine;
- iv. emissions test data used to meet the regulatory requirements of ARB's Verification Procedure for the non-verified emission control strategy implemented; or
- v. emissions test data used to meet the requirements for U.S. EPA certification for systems providing remanufacture to a cleaner standard.

The E.O. may, in his/her sole discretion and based on good engineering judgment, exclude any information he/she determines is not reliable or credible.

4. *Method C4 – Demonstrate to the E.O.'s written satisfaction that the in-use engine has not and will not operate 300 or more hours per calendar year in any of the regulated in-use vessel categories or 80 or more hours per calendar year in the barge or dredge vessel categories.*

A person may comply under this method by demonstrating to the E.O.'s written satisfaction that the engine is a low-use engine. This compliance method requires the person to provide records to the E.O. of the engine's total annual hours of operation while operating in any of the regulated in-use vessel categories for the calendar year immediately preceding the demonstration. The person must also provide documentation sufficient for the E.O. to project future annual hours of operation for the engine. The person will be deemed in compliance with this method only if such records and documentation demonstrate to the E.O.'s written satisfaction that the in-use engine has not and will not operate 300 or more hours per calendar year in any of the regulated in-use vessel categories with the exception of the dredge or barge categories, or 80 or more hours per calendar year in either the dredge or barge categories.

(D) *Compliance Dates.*

Table 7, ~~and Table 8~~, Table 9, and Table 10 below set forth the compliance dates by which a person must meet the requirements of subsection (e)(6)(A). Table 7 applies only to ~~vessels engines on ferries, excursion vessels, tugboats, towboats, and push boats~~ with a homeport outside of the SCAQMD; Table 8 applies only to ~~vessels engines on ferries, excursion vessels, tugboats, towboats, and push boats~~ with a homeport within the SCAQMD; Table 9 applies only to engines on crew and supply vessels; and Table 10 applies only to engines on barge and dredge vessels. The

compliance dates are set forth by engine model year and total annual hours of operation (for all-uses in any regulated in-use vessel category) of the vessel in Regulated California Waters. For Table 7, Table 9, and Table 10, Method D1, D2, or D3 below may be used for determining the actual or effective engine model year. For Table 8, only Method D1 or D3 may be used for determining the actual or effective engine model year.

1. *Method D1 – the engine’s actual model year of manufacture.*

A person may determine an engine’s compliance date under this method by using the engine’s actual model year of manufacture, as documented by the sales contract, invoice, purchase order, or other legitimate proof of purchase for the engine. The actual model year of manufacture may also be shown on a label permanently affixed to the engine by the manufacturer. In the event of a conflict between the proof of purchase and the permanent label, the date of manufacture shown on the permanent label controls.

2. *Method D2 – the engine’s effective model year based on the “Engine’s Model Year + 5” method.*

A person may determine an engine’s compliance date under this method by calculating the engine’s effective model year as the actual model year, using Method D1 above, and adding to that number 5 more years. To use this method, the person must use a diesel emissions control strategy (DECS) with the engine, as set forth below:

- a. Relative to the emissions without the use of the DECS, the engine with the DECS must be demonstrated to the E.O.’s written satisfaction as emitting at least 25 percent less diesel PM or NO_x, and neither of those pollutants are increased by more than 10 percent. This requirement is met automatically if the DECS is a verified DECS (VDECS);
- b. If the DECS is not a VDECS, the person must demonstrate compliance with this paragraph by submitting to the E.O. emissions data that demonstrate the non-verified emission control technology achieves a diesel PM or NO_x emission reduction of 25 percent or better, using the test methods specified in subsection (j). Upon approval of the E.O., the person may submit data derived from the use of other test methods to demonstrate to the E.O.’s written satisfaction the required 25 percent minimum emission reductions, such as:
 - i. marine engine certification test data for the harbor craft propulsion or auxiliary engine, or engine manufacturer emissions test data;

- ii. emissions test data derived from another engine that is configured and used in a substantially similar way to the in-use engine on which the emission control strategy is to be used; or
- iii. emissions test data used to meet the regulatory requirements of the ARB Verification Procedure for the non-verified emission control strategy implemented.

The E.O. may, in his/her sole discretion and based on good engineering judgment, exclude any data derived from the test methods under paragraph b above that he/she determines are not reliable or credible.

A person's use of a DECS or VDECS, which meets the requirements of this provision, extends the engine's compliance date to the compliance date for a similar engine that is five model years newer (i.e., the actual model year for the engine with the emissions control strategy + 5).

[Note: For example, the owner of a 1995 model year engine on a tugboat, which has a homeport outside of SCAQMD and operates in Regulated California Waters for 750 hours in 2013, would normally be required to meet a December 31, 2014 compliance date, as set forth in Table 7. However, if a DECS that meets the requirements of this provision is implemented with this engine prior to the 2014 nominal compliance date, the engine's actual compliance date would be extended to the compliance date for a 2000 model year engine (i.e., the effective model year = the 1995 model year + 5). Accordingly, in that scenario, the engine's effective model year would extend the compliance date to December 31, 2016];

3. *Method D3 – the engine's effective model year based on the "Engine's Tier 1 Rebuild Model Year" method.*

A person may determine an engine's compliance date by demonstrating, to the E.O.'s written satisfaction, that the engine is an existing pre-2004 model year engine that was rebuilt to conform with U.S. EPA Tier 1 marine standards prior to January 1, 2008. If the E.O. is thus satisfied, the effective model year of the Tier 1 rebuilt engine, for purposes of determining the compliance date in Table 7-~~or~~, Table 8, Table 9, or Table 10, is the actual year in which the Tier 1 rebuild occurred.

Table 7: Compliance Dates for Engines on Ferries, Excursion Vessels, Tugboats, Towboats, and Push Boats Vessels-with Homeports Outside SCAQMD

Engine Model Year	Total Annual Hours of Operation	Compliance Date
1975 and earlier	≥ 1500	12/31/2009
1975 and earlier	≥300 and < 1500	12/31/2010
1976 - 1985	≥1500	12/31/2011
1976 - 1985	≥ 300 and < 1500	12/31/2012
1986 - 1995	≥ 1500	12/31/2013
1986 - 1995	≥ 300 and < 1500	12/31/2014
Ferries Only 1996 - 1999	≥ 300	12/31/2014
Vessels Other Than Ferries 1996 - 1999	≥ 1500	12/31/2015
Vessels Other Than Ferries 1996 - 1999	≥ 300 and < 1500	12/31/2016
2000	≥ 1500	12/31/2015
2000	≥ 300 and < 1500	12/31/2016
2001 - 2002	≥ 300	12/31/2017
2003	≥ 300	12/31/2018
2004	≥ 300	12/31/2019
2005	≥ 300	12/31/2020
2006	≥ 300	12/31/2021
2007	≥ 300	12/31/2022

[Note: For example, if a 1982-model year diesel engine on a tugboat operating in Regulated California Waters is used for 750 hours in 2011, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(6)(C) by December 31, 2012.].

Table 8: Compliance Dates for Engines on Ferries, Excursion Vessels, Tugboats, Towboats, and Push Boats Vessels with Homeports in SCAQMD

Engine Model Year	Total Annual Hours of Operation	Compliance Date
1979 and earlier	≥ 300	12/31/2009
1980 – 1985	≥ 300	12/31/2010
1986 – 1990	≥ 300	12/31/2011
1991 – 1995	≥ 300	12/31/2012
1996 – 2000	≥ 300	12/31/2013
2001	≥ 300	4312/31/2014
2002	≥ 300	12/31/2015
2003	≥ 300	12/31/2016
2004	≥ 300	12/31/2017
2005	≥ 300	12/31/2018
2006	≥ 300	12/31/2019
2007	≥ 300	12/31/2020

[Note: For example, if a 1982-model year diesel engine on a tugboat operating in Regulated California Waters is used for 300 or more hours in 2009, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(6)(C) by December 31, 2010.].

Table 9: Compliance Dates for Engines on Crew and Supply Vessels Statewide

<u>Engine Model Year</u>	<u>Total Annual Hours of Operation</u>	<u>Compliance Date</u>
<u>1985 and earlier</u>	<u>> 1500</u>	<u>12/31/2011</u>
<u>1985 and earlier</u>	<u>> 300 and < 1500</u>	<u>12/31/2012</u>
<u>1986 – 1995</u>	<u>> 1500</u>	<u>12/31/2013</u>
<u>1986 – 1995</u>	<u>> 300 and < 1500</u>	<u>12/31/2014</u>
<u>1996 – 2000</u>	<u>> 1500</u>	<u>12/31/2015</u>
<u>1996 – 2000</u>	<u>> 300 and < 1500</u>	<u>12/31/2016</u>
<u>2001 – 2002</u>	<u>> 300</u>	<u>12/31/2017</u>
<u>2003</u>	<u>> 300</u>	<u>12/31/2018</u>
<u>2004</u>	<u>> 300</u>	<u>12/31/2019</u>
<u>2005</u>	<u>> 300</u>	<u>12/31/2020</u>
<u>2006</u>	<u>> 300</u>	<u>12/31/2021</u>
<u>2007</u>	<u>> 300</u>	<u>12/31/2022</u>

**Table 10: Compliance Dates for pre-Tier 1 and Tier 1 Engines on
Dredge and Barge Vessels Statewide**

<u>Engine Model Year</u>	<u>Total Annual Hours of Operation</u>	<u>Compliance Date</u>
<u>1975 and earlier</u>	<u>>80</u>	<u>12/31/2011</u>
<u>1976 -1980</u>	<u>>80</u>	<u>12/31/2012</u>
<u>1981 - 1985</u>	<u>>80</u>	<u>12/31/2013</u>
<u>1986-1990</u>	<u>>80</u>	<u>12/31/2014</u>
<u>1991-1995</u>	<u>>80</u>	<u>12/31/2015</u>
<u>1996-1999</u>	<u>>80</u>	<u>12/31/2016</u>
<u>2000 -2001</u>	<u>>80</u>	<u>12/31/2017</u>
<u>2002</u>	<u>>80</u>	<u>12/31/2018</u>
<u>2003</u>	<u>>80</u>	<u>12/31/2019</u>
<u>2004</u>	<u>>80</u>	<u>12/31/2020</u>
<u>2005</u>	<u>>80</u>	<u>12/31/2021</u>
<u>2006</u>	<u>>80</u>	<u>12/31/2022</u>

(E) Compliance Extensions.

Pursuant to this subsection (e)(6)(E), a person subject to the requirements of subsection (e)(6)(C) may request in writing to the E.O. an extension to a compliance date set forth in subsection (e)(6)(D) (i.e., extension to the “nominal” compliance date). The E.O. may grant the person an extension to the nominal compliance date for any one of the reasons set forth below. A person granted such an extension is deemed to be in compliance with the requirements of subsection (e)(6)(C) during the extension period, but only upon written authorization from the E.O. made pursuant to this provision and only until the end of the extension period. During the extension, the person must meet all other requirements of this section. Immediately upon the end of the extension period, the person must meet all the applicable requirements of this section, including but not limited to, subsection (e)(6)(C).

Except as provided in paragraph (e)(6)(E)3 below, the E.O. may not combine compliance extensions granted pursuant to this provision with any other compliance date extensions, including those set forth in this provision and in subsection (e)(6)(D)2 and (D)3. And except as provided in paragraphs (e)(6)(E)2 and (e)(6)(E)3 below, under no circumstances may the E.O. grant more than one compliance extension for any individual engine, set of engines, or harbor craft.

1. Change in Annual Hours of Operation.

The E.O. may grant a one-time, maximum one year extension to the nominal compliance date set forth in subsection (e)(6)(D), provided the

person demonstrates to the E.O.'s written satisfaction that the all of the following have occurred:

- a. The person reasonably determined the vessel engine's nominal compliance date based on the engine's hours of operation two years before the nominal compliance date; and
- b. In the year immediately prior to the nominal compliance date, the engine's annual hours of operation increased significantly from the prior year such that the engine's nominal compliance date would have been accelerated from one compliance date to an earlier compliance date.

[Note: For example, suppose an operator has a 1982-model year engine on a tugboat, which has a homeport outside of SCAQMD and operates for 750 hours in Regulated California Waters in 2010. If it is reasonable for the operator to assume the annual hours of operation in 2011 will be similar to 2010, the operator would project from Table 7 that the engine's compliance date is December 31, 2012, and would plan his operations accordingly. However, if the vessel engine's operation increased substantially to 1600 hours in 2011, the engine normally would then have its compliance date accelerated to December 31, 2011, according to Table 7. The one-year extension would, therefore, extend the engine's actual compliance date back to what it would have been without the change in hours of operation (i.e., back to December 31, 2012).].

2. No Suitable Engine Replacement for Harbor Craft.

The E.O. may grant to a person a one year extension, which can be renewed annually, only if the person demonstrates to the E.O.'s written satisfaction that there is no suitable ~~Tier 2-certified or Tier 3-~~ Tier 3 marine or off-road-certified replacement engine available anywhere that can be used in the person's specific vessel, and the person cannot otherwise meet the requirements of subsection (e)(6)(C).

The E.O., in his/her sole discretion, may use any information available to the E.O. to rebut the person's demonstration. For purposes of this paragraph, the E.O. may deem an engine as suitable to replace an existing engine if the replacement engine is similar in horsepower to the existing engine, the replacement engine can fit within the vessel's engine compartment, and installation of the replacement engine would not cause the vessel to violate U.S. Coast Guard or other applicable safety regulations. The E.O. may not consider the cost of the replacement engine, by itself or including installation and downtime costs, in determining its suitability as a replacement.

The application for and issuance of an initial extension and subsequent extensions pursuant to this paragraph are subject to the following requirements:

- a. For an initial extension and all subsequent annual extensions to be granted pursuant to this paragraph, the E.O. shall follow the same procedures for applying, determining completeness, allowing public review and considering public comments, taking final action, and publishing E.O. decisions that are set forth in subsection (f) for Alternative Control of Emissions (ACE) applications;
- b. The E.O. shall consider all information submitted by the public, including but not limited to, information related to the availability of replacement engines suitable for the person's vessel;
- c. Except for the engine(s) for which the extension is sought, the person must demonstrate that all other engines subject to the person's direct control meet the requirements of subsection (e)(6);
- d. The person must submit the application for an extension so that it is received by the E.O. no later than 6 months before the nominal compliance date of the engine for which the extension is requested;
- e. The person must identify in the application each engine for which the extension is requested;
- f. For each engine identified in paragraph 2 above, the person must provide in the application a detailed description of the reasons and factors that serve as the basis for the claim that no suitable replacement engine is available. This description must include, at a minimum, detailed engineering diagrams, calculations, and citations to applicable U.S. Coast Guard regulations that support the person's claim that there are no suitable replacement engines available.
- g. After the initial extension, the E.O. may grant additional one year extensions, provided the following requirements are met:
 - i. All procedures specified in paragraph (e)(6)(E)2.a and (e)(6)(E)2.b above are followed;
 - ii. The application for an additional extension demonstrates the engines identified in paragraph (e)(6)(E)2.c remain in compliance with this section;
 - iii. The application is received by the E.O. no sooner than 6 months but no later than 2 months before the expiration of the previous extension;

- iv. The application identifies the engine(s) for which the additional extension is requested;
- v. For each engine identified in paragraph (e)(6)(E)2.g.iv above, the person must provide in the application a detailed description of the reasons and factors that serve as the basis for the claim that suitable replacement engines remain unavailable. This description must include, at a minimum, detailed engineering diagrams, calculations, and citations to applicable U.S. Coast Guard regulations that support the person's claim that there are still no suitable replacement engines available.

3. *Equipment Manufacturer Delays or Installation Difficulties.*

Upon written request, the E.O. may grant to a person a 6-month extension to the nominal compliance date set forth in subsection (e)(6)(D), provided all the following criteria are met:

- a. the person ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(6)(C) prior to the nominal compliance date set forth in subsection (e)(6)(D);
- b. the purchase order identified in paragraph a above was placed with the manufacturer no later than 6 months before the engine's nominal compliance date;
- c. the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays or excessive difficulties encountered by the engine or equipment installer; and
- d. the applicant for the extension provides documentation to the E.O.'s satisfaction that demonstrates the criteria in subparts a. through c. above have been met. The E.O. may, in his/her sole discretion, use any information available to rebut any of the documentation submitted pursuant to subparts a through c above.

4. *Multiple Engines on Multiple Vessels Within Same Fleet and With Same Compliance Dates.*

This provision applies only to fleets of 2 or more vessels that are owned by the same person. Upon written request, the E.O. may grant to the person an extension to the nominal compliance date(s) for engines on vessels within such fleets, as set forth below;

- a. For each set of engines on two or more vessels or for each single engine in three or more vessels with compliance dates of 2009 or

2010 for ferries, excursion vessels, tugboats, towboats, and push boats and 2011 or 2012 for crew and supply vessels and barge and dredge vessels (a “set” means 2 or more engines), the E.O. may grant a one-time extension of the compliance date to December 31, 2013 for ferries, excursion vessels, tugboats, towboats, and push boats and to December 31, 2015 for crew and supply vessels and barge and dredge vessels, provided the E.O. receives and approves a compliance schedule from the person that meets the requirements set forth below:

- i. The compliance schedule is received by the E.O. no later than December 31, 2009 for ferries, excursion vessels, tugboats, towboats, and push boats and prior to December 31, 2011 for crew and supply, barge, and dredge vessels;
 - ii. For each year, up to and including 2013 for ferries, excursion vessels, tugboats, towboats, and push boats and 2015 for crew and supply vessels and barge and dredge vessels, that the extension will be in effect, the compliance schedule must identify, at a minimum, the engines on specified vessels in the fleet that will meet the requirements of subsection (e)(6)(C) within any given year;
 - iii. The compliance schedule must show that all engines with compliance dates of 2009 or 2010 for ferries, excursion vessels, tugboats, towboats, and push boats and 2011 or 2012 for crew and supply vessels and barge and dredge vessels on the specified vessels in the fleet will be in compliance with subsection (e)(6)(C) by December 31, 2013 for ferries, excursion vessels, tugboats, towboats, and push boats and December 31, 2015 for crew and supply vessels and barge and dredge vessels. [Note: For example, an approvable plan may show that 25% of these engines on the specified vessels in a fleet will be in compliance in 2010, 50% in 2011, 75% in 2012, and 100% by December 31, 2013.]; and
 - iv. The compliance schedule must include all other information the E.O. deems necessary and appropriate for implementing this provision.
- b. For each set of engines on two or more vessels or each single engine on three or more vessels with a compliance date of 2011 or later for ferries, excursion vessels, tugboats, towboats, and push boats and 2013 or later for crew and supply vessels and barge and dredge vessels (a “set” means 2 or more engines), the E.O. may grant to a person a one-time, maximum one-year

extension of the nominal compliance date. To receive an extension under this provision, the person must submit a written request to the E.O. that meets the following requirements:

- i. The request must be received by the E.O. no later than December 31st of the year immediately preceding the nominal compliance date for the set of engines; and
- ii. The request identifies the engines in each set of engines and the vessels in the person's fleet that are subject to the requested extension.

For all engines within a person's fleet that have not been granted an extension pursuant to paragraphs a or b above, the compliance dates for such engines remain as set forth in subsection (e)(6)(D).

(F) *Special Provisions Applicable to the Use of a Diesel Emission Control Strategy (DECS), including Verified Diesel Emission Control Strategies (VDECS).*

The following requirements apply to any person's use of a DECS pursuant to subsections (e)(5) or (e)(6) and are in addition to any other applicable requirements:

1. Once the DECS is installed or otherwise employed on a person's vessel, the person must continue to operate and maintain the DECS, in accordance with the manufacturer's directions, to achieve the original level of emission reductions that the DECS was designed and intended to achieve;
2. In the event a DECS fails, breaks down, or is otherwise damaged (collectively referred to hereinafter as "fail" or "failure"), the vessel owner or operator must, within 90 days of the DECS failure, do at least one of the following:
 - a. repair the DECS to good working order;
 - b. replace the failed DECS with another working DECS, if it cannot be repaired; or
 - c. employ another method that meets the requirements of subsection (e)(6)(C) and other applicable provisions of this section, if the DECS cannot be repaired.

3. The determination in subpart 2.b and 2.c above of whether a DECS cannot be repaired may only be made by either the DECS manufacturer or an authorized dealer.
4. For each replacement DECS installed under subpart 2.b above, the person must provide to the E.O. the same documentation for the replacement DECS that was required for the DECS that failed, and the person must obtain the same E.O. approvals that were required with the failed DECS.

(f) *Alternative Control of Emissions (ACE).*

(1) Requirements.

- (A) The purpose of this subsection is to allow a person ("person" or "applicant") the option of complying with the requirements of this subsection in lieu of the requirements of subsection (e). As set forth in this subsection, a person may be deemed in compliance with subsection (e) by implementing an alternative emission control strategy(ies) (AECS) approved by the E.O. In no case may the E.O. approve an AECS that results in or has the potential to result in any increase of diesel PM and NO_x emissions or any increase in emissions greater than 10 percent for any other pollutant, relative to the emissions of diesel PM, NO_x, and other pollutants that would have occurred under compliance with subsection (e).
- (B) An applicant wishing to participate in an ACE may include one or more harbor craft in the ACE, but the applicant may only include harbor craft that the person owns or operates under the person's direct control.
- (C) No harbor craft may be included in more than one ACE plan.
- (D) Harbor craft included in an ACE must continue to be included in and operated pursuant to the approved ACE for the duration of the ACE.

(E) AECS may include, but are not limited to, any combination of the following:

1. engine modifications;
2. exhaust treatment control;
3. engine repower;
4. use of alternative fuels or fuel additives;
5. shore-side power;
6. fleet averaging; and
7. any other measures that sufficiently reduce emissions.

(F) A person complying under this provision must obtain E.O. approval of an ACE application that demonstrates compliance with this subsection and contains, at a minimum, the following information:

1. the company name, address, and contact information;
2. the harbor craft and engine(s) subject to the ACE, including the vessel name and identification number(s), engine make, model, and serial numbers, and other information that uniquely identify the engine;
3. documentation, calculations, emissions test data, or other information that establishes the diesel PM and NO_x reductions, expressed in pounds, are equal to or greater than the emission reductions that would have been achieved upon compliance with subsection (e), including but not limited to the requirements specified in subsection (e)(6)(C) and (e)(6)(D); and
4. the proposed recordkeeping, reporting, monitoring, and testing procedures that the applicant will use to demonstrate continued compliance with the ACE.

(G) For each ACE, the emission reduction calculations demonstrating equivalence with the requirements of subsection (e) may include only those diesel PM and NO_x emissions from harbor craft with its homeport within a single specified California air district, or another defined geographic area approved by the E.O.

(H) A person subject to an approved ACE must maintain operating records in the manner and form as specified by the E.O as an element of any approved ACE. Required records must include, at a minimum:

1. all the reporting and recordkeeping requirements specified in subsections (g) and (h);
2. maintenance procedures; and
3. emissions test results.

A person subject to an approved ACE must retain records and reports on each vessel or at an office at the vessel's homeport for the lifetime of each

engine and must submit these records and reports to the E.O. in the manner specified in the approved ACE or upon request by the E.O.

- (I) Emission reductions included in an ACE may not include reductions that are otherwise required by any local, State, or federal rule, regulation, or statute, or that are achieved or estimated from equipment not located in the region to which the ACE applies.
- (J) A person subject to an approved ACE may not operate any harbor craft under the ACE unless the person has first been notified in writing by the E.O. of the ACE's approval. Prior to such approval, the applicant must comply with the provisions of this section, including the requirements in subsection (e)(6)(C) and (e)(6)(D).

(2) Application Process.

- (A) Applications for an ACE must be submitted in writing to the Executive Officer for evaluation by February 28 of the first year that vessel engine compliance is required.
- (B) The E.O. shall establish an internet site ("ACE internet site") in which all documents pertaining to an ACE application shall be made available for public review. The E.O. shall also provide a copy of all such documents to each person who has requested copies of the documents; these persons shall be treated as interested parties. The E.O. shall provide two separate public comment periods during the ACE application process, as specified in subsection (f)(2)(D) and (f)(2)(E).
- (C) Completeness Determination.

Within 15 days after receiving an ACE application, the E.O. shall notify an applicant whether the application is deemed sufficiently complete to proceed with further evaluation. If the application is deemed incomplete, the notification shall identify the application's deficiencies. The E.O. shall have an additional 15-day period for reviewing each set of documents or information submitted in response to an incomplete determination. Nothing in this subsection prohibits the E.O. from requesting additional information from the applicant, during any part of the ACE application process, which the E.O. determines is necessary to evaluate the application.

- (D) Notice of Completeness and 30-Day First Public Comment Period.

After an ACE application has been deemed complete, the E.O. shall provide a 30-day public comment period to receive comments on any element of the ACE application and whether the E.O. should approve or disapprove the

ACE application based on the contents and merits of the application. The E.O. shall notify all interested parties of the following:

1. the applicant(s);
2. the start and end dates for the 30-day first comment period; and
3. the address of the ACE internet site where the application is posted.

The E.O. shall also make this notification available for public review on the ACE internet site.

(E) Proposed Action and 15-Day Second Public Comment Period.

Within 30 days after the first public comment period ends, the E.O. shall notify the applicant and all interested parties of ARB's proposed approval or disapproval. This notification shall propose to approve the application as submitted, disapprove the application, or approve the ACE application with modifications as deemed necessary by the E.O. The notification shall identify the start and end dates for the 15-day second public comment period.

During the second public comment period, any person may comment on the E.O.'s proposed approval or disapproval of the ACE application and any element of the application. The E.O. shall also make this notification available for public review on the ACE internet site.

(F) Final Action.

Within 15 days after the second public comment period ends, the E.O. shall take final action to either approve or deny an ACE application and shall notify the applicant accordingly. If the application is denied or modified, the E.O. shall state the reasons for the denial or modification in the notification. The notification to the applicant and approved ACE plan, if applicable, shall be made available to the public on the ACE internet site. In addition, the E.O. shall consider and address all comments received during the first and second public comment periods, and provide responses to each comment on the ACE internet site.

(G) Renewal of an Approved ACE.

An applicant may apply for renewal of an approved ACE by forwarding the E.O. updated information for all elements of the approved ACE for review and re-approval. The applicant must submit the renewal application so that the E.O. receives the application no later than 30 days prior to the end of the ACE compliance period.

(H) Notification to the E.O. of Changes to an Approved ACE.

A person with an approved ACE must notify the E.O. in writing within 30 days upon learning of any information that would alter the emissions estimates submitted during any part of the ACE application process. If the E.O. has reason to believe that an approved ACE has been granted to a person that no longer meets the criteria for an ACE, the E.O. may, pursuant to subsection (f)(3) below, modify or revoke the ACE as necessary to assure that the applicant and subject vessel(s) meet the emission reduction requirements in this section.

(3) Revocation or Modification of Approved ACEs.

With 30 days of notice of violation to the ACE holder, the E.O. may revoke or modify, as needed, an approved ACE if any of the following apply:

- (A) there have been multiple violations of the ACE provisions or the requirements of the approved ACE plan;
- (B) the E.O. has reason to believe that an approved ACE has been granted that no longer meets the criteria or requirements for an ACE; or
- (C) the person can no longer comply with the requirements of the approved ACE in its current form.

Public notification of a revocation or modification of an approved ACE shall be made available on the ACE internet site.

(g) Recordkeeping Requirements.

Beginning January 1, 2009, the owner or operator of a harbor craft must maintain the records specified in this subsection on the vessel or at the vessel's homeport for the life of each engine subject to this section, including fleet swing engines and marinized land-based engines. The owner or operator must provide such records for inspection to an agent or employee of ARB upon request for all harbor craft subject to this section. Records may be provided as a hard copy, electronic, or any alternative reporting strategy approved by the E.O. Records provided by the person under this provision must include, at a minimum, the following:

- (1) Owner or Operator Contact Information:
 - (A) Company name;
 - (B) Contact name, phone and fax number, address, e-mail address;
 - (C) Address where vessel is registered; and
 - (D) Reporting year.

- (2) Vessel information:
- (A) Harbor craft name;
 - (B) Specify vessel use(s) (ferry, excursion vessel, tugboat, ocean-going tugboat, towboat, push boat, work boat, commercial fishing vessel, charter fishing vessel, crew and supply vessel, pilot vessel, or other if none of the preceding apply);
 - (C) Vessel homeport;
 - (D) Vessel build year;
 - (E) U.S. Coast Guard documentation number;
 - (F) California Fish and Game license number;
 - (G) International Maritime Organization (IMO) number;
 - (H) Call Sign number; and
 - (I) Maritime Mobile Service identity number.
- (3) Engine Information (for each diesel engine on the vessel, including swing engines):
- (A) Current hour meter reading;
 - (B) Make of engine;
 - (C) Model of engine;
 - (D) Engine family (if applicable);
 - (E) Engine serial number;
 - (F) Year of manufacture of engine (if unable to determine, provide its approximate age);
 - (G) Rated brake horsepower;
 - (H) Total engine displacement; and
 - (I) Number of cylinders.
- (4) Operational Information:
- (A) Describe the general use of engine (propulsion or auxiliary engine);
 - (B) Total annual hours of operation, based upon readings of the non-resettable hour meters for previous calendar year per engine (for engines without an hour meter before 2009, provide an estimate);
 - (C) Total hours of operation per calendar year in each of the regulated in-use vessel categories, based upon readings of the non-resettable hour meters for previous calendar year per engine;
 - (~~C~~D) Estimated annual fuel usage per engine; and
 - (~~D~~E) Estimated percent operating time as a function of distance from shore at the distances below:
 - 1. 0-3 nautical miles; and
 - 2. >3-24 nautical miles; and
 - 3. >24 nautical miles from shore.
- (5) Control Equipment (if applicable):
- (A) Type of diesel emission control strategy;
 - (B) Manufacturer of installed diesel emission control strategy;

- (C) Model of installed diesel emission control strategy;
 - (D) Level of control – air pollutants controlled and percent reductions;
 - (E) Emission control serial number; and
 - (F) Date control equipment installed.
- (6) Maintenance records for each installed engine and diesel emission control strategy:
- (A) Hour meter reading at last top end rebuild (i.e., less than full rebuild);
 - (B) Hour meter reading at last full engine rebuild; and
 - (C) Number of times full engine rebuild completed.
- (7) The retirement date for each near-retirement vessel for which an owner or operator is claiming an exemption pursuant to subsection (c)(13).
- (8) For each engine for which the model year is determined using the “Engine’s Model Year + 5” method pursuant to subsection (e)(6)(D)(2):
- (A) the name and contact information (representative, address, and phone number) for the manufacturer of the emission control strategy;
 - (B) the name and type of emission control strategy;
 - (C) the installation date of the emission control strategy; and,
 - (D) if a VDECS is not being used for this purpose, the test plan, and the data demonstrating the emission reductions achieved due to the emission control strategy.
- (9) For each engine for which an owner or operator is claiming an extension pursuant to subsection (e)(6)(E)(3), the purchase order or signed contract between the owner or operator and seller of the new engine or equipment that has been purchased to comply with subsection (e)(6)(C) and (e)(6)(D).
- (10) For each engine an owner or operator claims to have replaced, for purposes of compliance with the requirements of (e)(6), written documentation that the engine has been: dismantled, or destroyed, or sold out of state. Alternately, the engine may be used to replace an older engine if:
- (A) The older engine is subject to the in-use engine requirements, and
 - (B) the original compliance date of the older engine is retained for the newer engine.
- (11) Records for each engine must be retained by the owner or operator for the entire engine life.
- (12) All records specific to an E.O. approved ACE plan.
- (13) All records specific to a BACT approved by the E.O. pursuant to subsection (e)(5).

(h) *Initial and Compliance Plan Reporting Requirements.*

- (1) Initial Reporting of California Harbor Craft Fleet. By February 28, 2009, a person subject to this section must submit the information specified in subsections (g)(1) through (g)(6) for all harbor craft vessels in his/her California fleet. For purposes of this paragraph, "California fleet" means the total population of harbor craft under the person's direct control as of January 1, 2009.
- (2) Compliance Plan. By February 28 of the year vessel engine compliance is required, a person subject to the requirements of subsection (e)(6)(C) and (e)(6)(D) must submit a Compliance Plan to the E.O. that describes in detail the engine replacements, rebuilds, upgrades, use of DECS, and any other measures the person plans to use to meet the requirements of subsection (e)(6)(C) and (e)(6)(D) for each of the person's engines and harbor craft. The person may revise the Compliance Plan, as needed, but the person must notify the E.O. within 10 business days of any changes to the Compliance Plan after the initial Compliance Plan is submitted. The Compliance Plan is for the E.O.'s informational and planning use only, and the substantive contents of the plan are not binding on either the E.O. or the person who submitted the Compliance Plan. The E.O.'s receipt and acceptance of a submitted Compliance Plan shall not constitute or be interpreted as evidence of compliance with the requirements of subsection (e)(6)(C) or (e)(6)(D).
- (3) Demonstration of Compliance. By no later than the applicable compliance date specified in subsection (e)(6)(D), a person subject to the requirements of subsection (e) must provide the following information to the E.O.:
 - (A) All information specified in subsections (g)(1) through (g)(6), and
 - (B) The implementation date and the emission control strategy implemented for each engine in accordance with the requirements of subsection (e)(6)(D) and (e)(6)(C), respectively, for purposes of demonstrating compliance.
- (4) Reporting for Change of Annual Hours of Operation, Vessel Category/Use, Transfers of Vessels, ~~or a~~ Change of Ownership of Vessel or Engine, or Vessel Operation in Regulated California Waters.
 - (A) A person subject to this section must submit to the E.O. the information specified in subsection (g)(1) through (g)(6) within 30 days of a significant change of annual hours of operation (i.e., enough to change the engine's compliance date), vessel category/use, purchase, lease, rental, or change of ownership of the vessel or engine. In the case of a purchase, lease, rental, or change in ownership, the party in control or possession of the engine or vessel after the transaction is responsible for meeting the requirements of this paragraph;

(B) A person subject to this section must submit to the E.O. the information specified in subsection (g)(1) through (g)(6) within 30 days of the initial operation of a vessel brought into Regulated California Waters;

(B)(C) Within 90 days of a significant change of annual hours of operation, vessel category/use, purchase, lease, rental, ~~or~~ change of ownership, or initial operation of a vessel brought into Regulated California Waters, or by the earliest applicable compliance date specified in subsection (e)(6)(D), whichever is later, a person subject to subsection (e)(6) shall submit a new Compliance Plan with the updated information pursuant to the Compliance Plan requirements specified in paragraph 2 above.

(i) *Violations.*

- (1) A person who is subject to this section and commits a violation of any provision, standard, criteria, or requirement in this section is subject to the penalties, injunctive relief, and other remedies specified in H&S section 42400 et seq.; H&S section 42402 et seq.; other applicable sections in the Health and Safety Code; and other applicable provisions as provided under California law for each violation. Nothing in this section shall be construed to limit or otherwise affect any applicable penalties or other remedies available under federal law.
- (2) Any failure to meet any provision, standard, criteria, or requirement in this section, including but not limited to the applicable emission limits; recordkeeping requirements; and ACE provision, including the requirements of any approved ACE plans, shall constitute a single, separate violation of this section for each hour that a person operates a vessel within the Regulated California Waters until such provision, standard, criteria, or requirement has been met.
- (3) A person who is subject to this section is liable for meeting the requirements of this section, notwithstanding any contractual arrangement that person may have with any third-parties.

(j) *Methods to Demonstrate Compliance with Engine and Fuel Standards.*

- (1) Diesel PM, NO_x, NO, CO, HC, NMHC, and CO₂ testing must be done in accordance with the applicable method specified in the following procedures: International Organization for Standardization (ISO) 8178-2: 1996(E) ("ISO 8178 Part 2"); (2) ISO 8178-4: 1996(E) ("ISO 8178 Part 4"); and applicable methods and procedures specified in 40 CFR Part 94 (as amended in 2007), all of which are incorporated herein by reference, or 40 CFR Part 1042 for marine engines or in 40 CFR Part 89 or 40 CFR Part 1039 for nonroad (off-road) engines, as those Parts existed on April 27, 2010. Each of the procedures specified in this subsection is incorporated by reference herein.

- (2) The E.O. may approve in writing any alternative test methods not specified in paragraph (1) above that the method's proponent has demonstrated to the E.O.'s satisfaction provides equivalent or better results to the methods in paragraph (1).

(k) *Right of Entry.*

An agent or employee of the ARB has the right of entry to board any harbor craft for the purpose of inspecting propulsion and auxiliary engines, emission control strategies, fuel systems, and fuel storage; collecting fuel sample(s) not to exceed one liter per fuel tank; and acquiring and inspecting records required pursuant to this section.

(l) *Severability.*

If any subsection, paragraph, subparagraph, sentence, clause, phrase, or portion of this regulation is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions of the regulation.

(m) *Submittal of Documents.*

- (1) All documents required under this regulation must be submitted to the Executive Officer as follows:

California Air Resources Board
Stationary Source Division
Emissions Assessment Branch
Control Strategies Section, Harbor Craft
P.O. Box 2815
Sacramento, California 95812-2815

- (2) Electronic submittals of information associated with compliance with this section may be approved by the E.O. upon request, provided such electronic submittals use digital signatures that meet the requirements specified in Government Code section 16.5. The E.O. may request the submittal of a hard copy of any electronic submittal.

NOTE: Authority cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, and 41511, 43013, and 43018, Health and Safety Code. Reference: Sections 39650, 39658, 39659, 39666, 41510, ~~and~~ 41511, 43013, and 43018, Health and Safety Code.

SUBCHAPTER 8. COMPLIANCE WITH NONVEHICULAR
EMISSION STANDARDS

94000. Vapor Recovery Systems. The test procedures for determining compliance with emission standards for gasoline vapors displaced during the fueling of underground storage tanks and vehicles shall be as set forth in "Test Procedures for Determining the Efficiency of Gasoline Vapor Recovery Systems at Service Stations" adopted on December 9, 1975, amended March 30, 1976, and amended August 9, 1978.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Sections 39607, 41954 and 43835, Health and Safety Code.

- History:* 1. New Subchapter 8 (Section 94000) filed 12-15-75; effective thirtieth day thereafter (Register 75, No. 51).
2. Amendment filed 4-13-76; effective thirtieth day thereafter (Register 76, No. 16).
3. Amendment of NOTE filed 3-18-77; effective thirtieth day thereafter (Register 77, No. 12).
4. Amendment filed 9-29-78; effective thirtieth day thereafter (Register 78, No. 39).

94001. Certification of Vapor Recovery Systems. The certification of gasoline vapor recovery systems at service stations shall be accomplished in accordance with the Air Resources Board's "Certification Procedures for Gasoline Vapor Recovery Systems at Service Stations" adopted on March 30, 1976, amended on August 25, 1977 and amended August 9, 1978.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Section 41954, Health and Safety Code.

- History:* 1. Amendment filed 9-8-77 as an emergency; effective upon filing. Certificate of Compliance included (Register 77, No. 37). For prior history, see Register 77, No. 20.
2. Amendment filed 9-29-78; effective thirtieth day thereafter (Register 78, No. 39).

94002. Certification of Vapor Recovery Systems—Gasoline Bulk Plants. Gasoline vapor recovery systems at bulk plants shall be certified in accordance with the Air Resources Board's "Certification and Test Procedures for Vapor Recovery Systems at Gasoline Bulk Plants," adopted March 15, 1977 and amended August 9, 1978.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Section 41954, Health and Safety Code.

- History:* 1. New section filed 5-10-77 as an emergency; effective upon filing. Certificate of Compliance included (Register 77, No. 20).
2. Amendment filed 9-29-78; effective thirtieth day thereafter (Register 78, No. 39).

94003. Certification of Vapor Recovery Systems—Gasoline Terminals. Gasoline vapor recovery systems at terminals shall be certified in accordance with the Air Resources Board's "Certification and Test Procedures for Vapor Recovery Systems at Gasoline Terminals," adopted on April 18, 1977.

NOTE: Authority cited: Section 39601, Health and Safety Code. Reference: Section 41954, Health and Safety Code.

- History:* 1. New section filed 5-10-77 as an emergency; effective upon filing. Certificate of Compliance included (Register 77, No. 20).

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Title 17, Division 3
Chapter 1 – Air Resources Board
Subchapter 8 – Compliance with Nonvehicular Emission Standards
Article 1 – Vapor Recovery Systems in Gasoline Marketing Operations

§ 94014. Certification of Vapor Recovery Systems for Cargo Tanks.

The certification of gasoline vapor recovery systems for cargo tanks shall be accomplished in accordance with the Air Resources Board's CP-204 "Certification Procedure for Vapor Recovery Systems of Cargo Tanks" which is incorporated herein by reference. (Adopted: April 18, 1977, as last amended November 7, 2014).

The following test procedures (TP) cited in CP-204 are also incorporated by reference.

TP-204.1 -- "Determination of Five Minute Static Pressure Performance of Vapor Recovery Systems of Cargo Tanks" (Adopted: April 12, 1996, as last amended November 7, 2014).

TP-204.2 -- "Determination of One Minute Static Pressure Performance of Vapor Recovery Systems of Cargo Tanks" (Adopted: April 12, 1996, as last amended May 27, 2014).

TP-204.3 -- "Determination of Leak(s)" (Adopted: April 12, 1996, as last amended November 7, 2014).

Note: Authority cited: Sections 39600, 39601, 39607, 41954 and 41962, Health and Safety Code.
Reference: Sections 39515, 39516, 39607, 41954 and 41962, Health and Safety Code.

HISTORY

- 1. New section filed 6-11-1996; operative 7-11-1996 (Register 96, No. 24).**
- 2. Amendment filed 5-6-1999; operative 6-5-1999 (Register 99, No. 19).**
- 3. Amendment filed 12-10-2014; operative 4-1-2015 (Register 2014, No. 50).**

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Article 1. Antiperspirants and Deodorants

17 CCR § 94500

§ 94500. Applicability.

Except as provided in section 94503, this article shall apply to any person who sells, supplies, offers for sale, or manufactures antiperspirants or deodorants for use in the state of California.

Note: Authority cited: [Sections 39600, 39601](#), and [41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment filed 2-29-96; operative 3-30-96 (Register 96, No. 9).

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17 CCR § 94500, 17 CA ADC § 94500

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Title 17. Public Health

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Chapter 1. Air Resources Board

Subchapter 8.5. Consumer Products

Article 1. Antiperspirants and Deodorants

17 CCR § 94501

§ 94501. Definitions.

For the purpose of this article, the following definitions apply:

- (a) “Aerosol Product” means a pressurized spray system that dispenses antiperspirant or deodorant ingredients.
- (b) “Antiperspirant” means any product including, but not limited to, aerosols, roll-ons, stick, pumps, pads, creams, and squeeze-bottles, that is intended by the manufacturer to be used to reduce perspiration in the human axilla by at least 20 percent in at least 50 percent of a target population.
- (c) “Colorant” means any substance or mixture of substances, the primary purpose of which is to color or modify the color of something else.
- (d) “Deodorant” means:
 - (1) for products manufactured before January 1, 2006: any product including, but not limited to, aerosols, roll-ons, sticks, pumps, pads, creams, and squeeze-bottles, that is intended by the manufacturer to be used to minimize odor in the human axilla by retarding the growth of bacteria which cause the decomposition of perspiration.
 - (2) for products manufactured on or after January 1, 2006: any product including, but not limited to, aerosol, roll-ons, sticks, pumps, pads, creams, and squeeze-bottles, that indicates or depicts on the container or packaging, or on any sticker or label affixed thereto, that the product can be used on or applied to the human axilla to provide a scent and/or minimize odor.
- (e) “Executive Officer” means the Executive Officer of the Air Resources Board, or his or her delegate.
- (f) “Fragrance” means a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapor pressure not in excess of 2 mm of Hg at 20°C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor.

(g) “High Volatility Organic Compound (HVOC)” means any organic compound that exerts a vapor pressure greater than 80 millimeters of Mercury (mm Hg) when measured at 20 °C.

(h) “Manufacturer” means any person who imports, manufactures, assembles, produces, packages, repackages, or relabels an antiperspirant or deodorant.

(i) “Medium Volatility Organic Compound (MVOC)” means any organic compound that exerts vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20 °C.

(j) “Non-aerosol Product” means any antiperspirant or deodorant that is not dispensed by a pressurized spray system.

(k) “Roll-on Product” means any antiperspirant or deodorant that dispenses active ingredients by rolling a wetted ball or wetted cylinder on the affected area.

(l) “Stick Product” means any antiperspirant or deodorant that contains active ingredients in a solid matrix form, and that dispenses the active ingredients by frictional action on the affected area.

(m) “Volatile Organic Compound (VOC)” means any compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding the following:

(1) methane,

methylene chloride (dichloromethane),

1,1,1-trichloroethane (methyl chloroform),

trichlorofluoromethane (CFC-11),

dichlorodifluoromethane (CFC-12),

1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113),

1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114),

chloropentafluoroethane (CFC-115),

chlorodifluoromethane (HCFC-22),

1,1,1-trifluoro-2,2-dichloroethane (HCFC-123),

1,1-dichloro-1-fluoroethane (HCFC-141b),

1-chloro-1,1-difluoroethane (HCFC-142b),
2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124),
trifluoromethane (HFC-23),
1,1,2,2-tetrafluoroethane (HFC-134),
1,1,1,2-tetrafluoroethane (HFC-134a),
pentafluoroethane (HFC-125),
1,1,1-trifluoroethane (HFC-143a),
1,1-difluoroethane (HFC-152a),
trans-1,3,3,3-tetrafluoropropene (HFO-1234ze),
cyclic, branched, or linear completely methylated siloxanes,
the following classes of perfluorocarbons:

- (A) cyclic, branched, or linear, completely fluorinated alkanes;
- (B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
- (C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
- (D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds to carbon and fluorine,
and

(2) the following low-reactive organic compounds which have been exempted by the U.S. EPA:

acetone,
ethane,
methyl acetate, and
parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene).

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsection (n) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
4. Amendment of subsection (m)(2) filed 5-25-99; operative 6-24-99 (Register 99, No. 22).
5. Amendment of subsection (d) and new subsections (d)(1)-(2) filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
6. Amendment of subsections (m)(1) and (m)(2) filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94502

§ 94502. Standards for Antiperspirants and Deodorants.

(a) Except as provided in sections 94503 (Exemptions), 94503.5 (Innovative Products), 94505 (Variances) and 94567(a)(1) (Hairspray Credit Program), Title 17, California Code of Regulations, no person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which, at the time of sale or manufacture, contains volatile organic compounds in excess of the limits specified in the following Tables of Standards, after the specified effective date, or after any date that has been specified by the Executive Officer pursuant to subsections (d)(2) or (d)(5):

(1) The following Table of Standards applies to products manufactured before January 1, 2001.

Table of Standards For products manufactured before January 1, 2001 (percent volatile organic compounds by weight)

Effective Dates

	12/31/92		1/1/95		1/1/97		1/1/99	
	HVOC [FN _a]	MHVOC [FN _b]	HVOC [FN _a]	MVOC [FN _b]	HVOC [FN _a]	MVOC [FN _b]	HVOC [FN _a]	MVOC [FN _c]
Aerosol Products in								
Compliance Plan [FN _c]								
Antiperspirants	60	20			40	10	0	10
Deodorants	20	20			14	10	0	10
All Other Aerosol								
Products								
Antiperspirants	60	20	0	10				
Deodorants	20	20	0	10				
Non-Aerosol	0	0	0	0				
Products								

a High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20° C.

b Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20° C.

c These standards apply to aerosol products manufactured by companies that have submitted a compliance plan pursuant to Section 94502(d), which has been approved by the Executive Officer.

(2) The following Table of Standards applies to products manufactured beginning January 1, 2001.

Table of Standards
For products manufactured beginning January 1, 2001
(percent volatile organic compounds by weight)

Effective Dates		
	1/1/01	
	HVOC [FNa]	MVOC [FNb]
Aerosol Products		
Antiperspirants	40	10
Deodorants	0	10
Non-Aerosol Products	0	0

a High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20° C.

b Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20° C.

(b) No person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which contains any of the following ozone-depleting compounds: CFC-11 (trichlorofluoromethane), CFC-12

(dichlorodifluoromethane), CFC-113 (1,1,2-trichloro-1,2,2-trifluoroethane), CFC-114 (1-chloro-1,1-difluoro-2-chloro-2,2-difluoroethane), CFC-115 (chloropentafluoroethane), halon 1211 (bromochlorodifluoromethane), halon 1301 (bromotrifluoromethane), halon 2404 (dibromotetrafluoromethane), HCFC-22 (chlorodifluoromethane), HCFC-123 (2,2-dichloro-1,1,1-trifluoroethane), HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane), HCFC-141b (1,1-dichloro-1-fluoroethane), HCFC-142b (1-chloro-1,1-difluoro-ethane), 1,1,1-trichloroethane, and carbon tetrachloride.

(c) No person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which contains any compound that has been identified by the ARB in [Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 7, Section 93000](#) as a toxic air contaminant.

(d) Special Requirements for Aerosol Manufacturers. This subsection (d) applies only to aerosol antiperspirant and deodorant products manufactured before January 1, 1999.

(1) A manufacturer of aerosol products may submit to the Executive Officer a compliance plan which describes how the manufacturer will achieve compliance with the requirements of section 94502 (a) for aerosol products.

(2) For each aerosol manufacturer who submits a compliance plan pursuant to subsection (d) (1), the Executive Officer shall suspend the 1/1/1995 requirements of section 94502 (a) for aerosol products until a date on or before January 1, 1999, if the compliance plan demonstrates to the Executive Officer's satisfaction that the manufacturer is making good faith efforts, either independently or as part of a cooperative effort with other manufacturers, to develop aerosol products that will comply with the requirements of section 94502(a) in accordance with a schedule which is reasonably likely to enable the manufacturer to produce an acceptable aerosol product which complies with these requirements by a date on or before January 1, 1999. Before reaching a decision to suspend the requirements of Section 94502(a), the Executive Officer may request an aerosol manufacturer to modify the compliance plan to include additional information.

(3) In order to qualify for a suspension under subsection (d)(2), the compliance plan submitted by the manufacturer must contain all of the following:

(A) A compliance schedule setting forth the sequence and respective dates for all key events in the process of developing aerosol products complying with the requirements of section 94502 (a).

(B) A commitment by each manufacturer which specifies that:

1. No later than January 1, 1997, the manufacturer will complete reformulation of aerosol antiperspirant and deodorant products to meet the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

2. No later than January 1, 1997, the manufacturer will cease manufacturing products for use in California that do not comply with the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

3. No later than January 1, 2000, the manufacturer will cease to sell, supply, or offer for sale of all products manufactured prior to January 1, 1997, that do not comply with the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

(C) For each manufacturer, technical detail and information on the progress each manufacturer has made and the effort each plans to make to comply with both the 1/1/1997 and 1/1/1999 HVOC standards specified in Section 94502(a) for aerosol products in a compliance plan, including individual company timetables with "milestones" or increments of progress which allow progress to be measured. The technical information shall be sufficiently detailed to allow individual manufacturer's compliance efforts to be monitored including, at a minimum, the following information:

1. Documentation of past, planned and ongoing research to meet the 1/1/1997 HVOC standards. Documentation will include data to support whether the 1/1/1997 standards represent the lowest achievable HVOC content, by whatever method or technology is chosen by the manufacturer. If hydrofluorocarbon-152a ("HFC-152a") is part of the technology to be used by the manufacturer, the information shall include, at a minimum: the manufacturer's current HFC-152a allocation for any use; the supply of HFC-152a to meet the manufacturer's needs for the aerosol antiperspirant and deodorant market; an indication as to whether the amount specified is needed to cover national or California sales; manufacturer's efforts to date to receive necessary allocations; time-frame to receive allocations; the actual path to compliance, including information on the types of formulations to be tested, formulation data, prototype testing, toxicity and stability tests, packaging and valve testing, safety and efficacy testing, consumer market testing and consumer acceptance, management decision for go-ahead, large-scale production, and availability to consumer; critical path identification; the expected date of aerosol antiperspirant and deodorant production that meets the 1/1/1997 standards; and a back-up plan that describes the manufacturer's actions should HFC-152a not be available in sufficient quantities.

If a compliance method or technology other than the use of HFC-152a is chosen, the information will include at a minimum: actual path to compliance, including information on the types of formulations to be tested, formulation data, prototype testing, toxicity and stability tests, packaging and valve testing, safety and efficacy testing, consumer market testing and customer acceptance, management decision for go-ahead, large-scale production, and availability to consumer; critical path identification; expected date to produce aerosol antiperspirants and deodorants that meet the 1/1/1997 HVOC standards; and a back-up plan describing the manufacturer's actions should the chosen compliance method or technology not succeed.

2. A description of past, ongoing, and planned research efforts to achieve the 1/1/1999 HVOC standards. The information required will be the same as for the 1/1/1997 HVOC standards, as described in Section 94502(d)(3) (C) above. This information will also include a detailed description of the pursued technologies, current status of this technology, and the feasibility of attaining the 1/1/1999 standards. The documentation will outline key events and a timetable in the development of products to meet the 1/1/1999 HVOC standards and alternative plans if the technology does not develop as expected.

3. A list of products which each individual manufacturer will be producing under this compliance plan.

(4) A manufacturer who has received a suspension pursuant to subsection (d)(2) shall submit annual updates to the compliance plan to the Executive Officer on January 1, 1995, January 1, 1996, January 1, 1997, January 1, 1998, and January 1, 1999. These updates shall describe any changes or revisions that should be made to the compliance plan,

based on any changed circumstances that have occurred since the submittal of the compliance plan or the last update. A manufacturer who has received a suspension pursuant to subsection (d)(2) shall also notify the Executive Officer in writing within 10 days after the failure of the manufacturer to meet any increment of progress specified in the compliance plan, or in any annual update to the compliance plan, and the likely effect of that failure on the ability of the manufacturer to comply with section 94502(a) by the date specified by the Executive Officer pursuant to subsection (d)(2).

(5) Within 120 days after each compliance plan update is due, or within 120 days after notification by a manufacturer pursuant to subsection (d)(4), the Executive Officer shall determine whether the manufacturer is continuing to make good faith efforts to develop aerosol products that will comply with the requirements of section 94502(a) in accordance with a schedule which is reasonably likely to enable the manufacturer to produce an acceptable aerosol product which complies with these requirements. If the Executive Officer determines that the manufacturer is not making such good faith efforts, the Executive Officer shall withdraw the suspension effective immediately upon written notification of the withdrawal to the manufacturer. Any antiperspirant or deodorant product manufactured prior to the date on which the manufacturer is notified that the suspension is withdrawn may be sold, supplied, or offered for sale up to three years after the effective date of the suspension withdrawal.

(6) A manufacturer may request a public hearing to review any decision made by the Executive Officer pursuant to subsections (d)(2) and (d)(5). The hearing shall be held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040).

(e) Notwithstanding the provisions of Section 94502(a), an antiperspirant or deodorant product manufactured prior to each of the effective dates specified for that product in the Table of Standards may be sold, supplied, or offered for sale up to three years after each of the specified effective dates. In addition, an aerosol antiperspirant or deodorant product manufactured prior to any compliance date specified by the Executive Officer pursuant to Section 94502(d)(2) may be sold, supplied, or offered for sale up to three years after the specified compliance date. This subsection (e) does not apply to any antiperspirant or deodorant product which does not display on the product container or package the date on which the product was manufactured, or a code indicating such date.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsections (c), (d), (e)(5), and new subsection (f) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
4. Amendment to subsections (d)(3)(B)3., (d)(5) and (e) filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
5. Amendment of subsection (a) filed 8-24-98; operative 8-24-98 pursuant to [Government Code section 11343.4\(d\)](#) (Register 98, No. 35).
6. Editorial correction of subsection (d)(4) (Register 99, No. 1).

7. Amendment of subsection (a), including redesignation and amendment of a portion of subsection (a) as new subsection (a)(1), new subsection (a)(2), and amendment of subsections (c), (d) and (e) filed 6-6-2001; operative 6-6-2001 pursuant to [Government Code section 11343.4](#) (Register 2001, No. 23).

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17 CCR § 94502, 17 CA ADC § 94502

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17 CCR § 94503

§ 94503. Exemptions.

(a) This article shall not apply to any person who manufactures antiperspirants or deodorants in California for shipment and use outside of California.

(b) The requirements of Section 94502(a) shall not apply to fragrances and colorants up to a combined level of 2 percent by weight contained in any antiperspirant or deodorant.

(c) The requirements of Section 94502(a) shall not apply to those volatile organic compounds that contain more than 10 carbon atoms per molecule and for which the vapor pressure is unknown, or that have a vapor pressure of 2 mm Hg or less at 20 degrees C.

(d) The medium volatility organic compound (MVOC) content standards specified in Section 94502(a), shall not apply to ethanol.

Note: Authority cited: [Sections 39600, 39601](#), and [41712 Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000](#), and [41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsections (c) and (d) filed 2-29-96; operative 3-30-96 (Register 96, No. 9).

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17 CCR § 94503.5

§ 94503.5. Innovative Products.

(a) The Executive Officer shall exempt an antiperspirant or deodorant product from the requirements of Section 94502(a) if a manufacturer demonstrates by clear and convincing evidence that, due to some characteristic of the product formulation, design, delivery systems, or other factors, the use of the product will result in less VOC emissions as compared to:

(1) the VOC emissions from a representative antiperspirant or deodorant product which complies with the VOC Standards specified in Sections 94502(a), or

(2) the calculated VOC emissions from a non-complying representative product, if the product had been reformulated to comply with the VOC standards specified in Section 94502(a). VOC emissions shall be calculated using the following equation:

$$E_R = E_{NC} \times \frac{VOC_{STD}}{VOC_{NC}}$$

Where:

E_R = the VOC emissions from the noncomplying representative product, had it been reformulated. = the VOC emissions from the noncomplying representative product, had it been reformulated.

E_{NC} = The VOC emissions from the noncomplying representative product in its current formulation.

VOC_{STD} = The VOC standard specified in 94502(a).

VOC_{NC} = The VOC content of the noncomplying product in its current formulation.

$$E_R = E_{NC} \times \frac{VOC_{STD}}{VOC_{NC}}$$

If a manufacturer demonstrates that this equation yields inaccurate results due to some characteristic of the product formulation or other factors, an alternative method which accurately calculates emissions may be used upon approval of the Executive Officer.

(b) For the purposes of this section, “representative antiperspirant or deodorant product” means an antiperspirant or deodorant product which meets all of the following criteria:

(1) the representative product shall be subject to the same VOC limit in Section 94502(a) as the innovative product.

(2) the representative product shall be of the same product form as the innovative product, unless the innovative product uses a new form which does not exist in the product category at the time the application is made.

(3) the representative product shall have at least similar efficacy as other consumer products in the same product category based on tests generally accepted for that product category by the consumer products industry.

(c) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under subsection (a). The application shall include the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition, the applicant must provide any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption including the VOC content for the innovative product and test methods for determining the VOC content. All information submitted by a manufacturer pursuant to this section shall be handled in accordance with the procedures specified in Title 17, California Code of Regulation, Sections 91000-91022.

(d) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete as provided in [section 60030\(a\), Title 17, California Code of Regulations](#).

(e) Within 90 days after an application has been deemed complete, the Executive Officer shall determine whether, under what conditions, and to what extent, an exemption from the requirements of Section 94502(a) will be permitted. The applicant and the Executive Officer may mutually agree to a longer time period for reaching a decision, and additional supporting documentation may be submitted by the applicant before a decision has been reached. The Executive Officer shall notify the applicant of the decision in writing and specify such terms and conditions that are necessary to insure that emissions from the product will meet the emissions reductions specified in subsection (a), and that such emissions reductions can be enforced.

(f) In granting an exemption for a product, the Executive Officer shall establish conditions that are enforceable. These conditions shall include the allowable VOC content of the innovative product, dispensing rates, application rates, and any other parameters determined by the Executive Officer to be necessary. The Executive Officer shall also specify the test methods for determining conformance to the conditions established. The test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures.

(g) For any product for which an exemption has been granted pursuant to this section, the manufacturer shall notify the Executive Officer in writing within 30 days of any change in the product formulation or recommended product usage directions, and shall also notify the Executive Officer within 30 days if the manufacturer learns of any information which would alter the emissions estimates submitted to the Executive Officer in support of the exemption application.

(h) If VOC standards are lowered for a product category through any subsequent rulemaking, all innovative product exemptions granted for products in the product category, except as provided in this subsection (h), shall have no force and effect as of the effective date of the modified VOC standard. This subsection (h) shall not apply to those innovative products which have VOC emissions less than the appropriate lowered VOC standard and for which a written notification of the product's emissions status versus the lowered VOC standard has been submitted to and approved by the Executive Officer at least 60 days before the effective date of such standard.

(i) If the Executive Officer believes that an antiperspirant or deodorant product for which an exemption has been granted no longer meets the criteria for an innovative product specified in subsection (a), the Executive Officer may modify or revoke the exemption as necessary to assure that the product will meet these criteria. The Executive Officer shall not modify or revoke an exemption without first affording the applicant an opportunity for a public hearing held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040), to determine if the exemption should be modified or revoked.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsection (a) to create a new subsection (a)(1), new subsection (a)(2), amendment of subsection (b), new subsections (b)(1)-(3), repealer of subsection (c) and relettering, and amendment of subsections (c), (e)-(f), and (i) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment of subsections (a)-(a)(2), (b)-(b)(1), (e) and (h)-(i) filed 2-29-96; operative 3-30-96 (Register 96, No. 9).

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17 CCR § 94504

§ 94504. Administrative Requirements.

(a) Labeling.

(1) No later than three months after the effective date of this article, each manufacturer of an antiperspirant or deodorant subject to this article shall clearly display on each container of antiperspirant or deodorant, the date on which the product was manufactured, or a code indicating such date. If a manufacturer uses a code indicating the date of manufacture, an explanation of the code must be filed with the Executive Officer in advance of the code's use by the manufacturer.

(2) Location of Labeling Information: The date or date-code information required by subsection (a)(1) shall be located in the container so that it is readily observable without disassembling any part of the container or packaging.

(3) Defacing of Containers: No person shall erase, alter, deface or otherwise remove or make illegible any date or date-code from any regulated product container without the express authorization of the manufacturer.

(b) Reporting.

(1) Upon 90 days written notice each manufacturer subject to this article shall submit to the Executive Officer the following information:

(A) the brand name for each antiperspirant or deodorant product;

(B) the owner of the trademark or brand name;

(C) the product forms (aerosol, pump, liquid, solid, etc.);

(D) the California annual sales in pounds per year and the method used to calculate California annual sales;

(E) the total VOC (as defined in Section 94501(m)) content in percent by weight which: (a) has a vapor pressure of 2.0 mm Hg or less at 20° C or (b) consists of more than 10 carbon atoms, if the vapor pressure is unknown;

(F) the total HVOC and MVOC content and type (as defined in Section 94502(a)) in percent by weight;

(G) the percent by weight of VOC, water, solids, propellant, and any compounds that are exempt from the definition of VOC specified in section 94501;

(H) any additional information necessary to determine volatile organic compound emissions from any antiperspirant or deodorant products.

(2) All information submitted by manufacturers pursuant to Section 94504(b) shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Sections 91000-91022.

Note: Authority cited: [Sections 39600, 39601, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsection (b) filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
3. Redesignation of part of subsection (a) as new subsection (a)(1) and new subsections (a)(2)-(3), amendment of subsections (b)(1) and (b)(2)(E)-(F), new subsection (b)(3) and subsection renumbering filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
4. Change without regulatory effect amending subsection (b)(2)(E) filed 1-6-98 pursuant to [section 100, title 1, California Code of Regulations](#) (Register 98, No. 2).
5. Amendment filed 6-6-2001; operative 6-6-2001 pursuant to [Government Code section 11343.4](#) (Register 2001, No. 23).

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17 CCR § 94505

§ 94505. Variances.

(a) Any person who cannot comply with the requirements set forth in Section 94502, because of extraordinary reasons beyond the person's reasonable control may apply in writing to the Executive Officer for a variance. The variance application shall set forth:

- (1) the specific grounds upon which the variance is sought;
- (2) the proposed date(s) by which compliance with the provisions of Section 94502 will be achieved, and
- (3) a compliance report reasonably detailing the method(s) by which compliance will be achieved.

(b) Upon receipt of a variance application containing the information required in subsection (a), the Executive Officer shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance from the requirements in Section 94502 is necessary and will be permitted. A hearing shall be initiated no later than 75 days after receipt of a variance application. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 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 30 days prior to the hearing. The notice shall state that the parties may, but need not be, represented by counsel at the hearing. At least 30 days prior to the hearing, the variance application shall be made available to the public for inspection. Information submitted to the Executive Officer by a variance applicant may be claimed as confidential, and such information shall be handled in accordance with the procedures specified in [Title 17, California Code of Regulations, Sections 91000-910022](#). The Executive Officer may consider such confidential information in reaching a decision on a variance application. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.

(c) No variance shall be granted unless all of the following findings are made:

- (1) That, because of reasons beyond the reasonable control of the applicant, requiring compliance with Section 94502 would result in extraordinary economic hardship;
- (2) 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;

(3) that the compliance report proposed by the applicant can reasonably be implemented, and will achieve compliance as expeditiously as possible.

(d) Any variance order shall specify a final compliance date by which the requirements of Section 94502 will be achieved. Any variance order shall contain a condition that specifies increments of progress necessary to assure timely compliance, and such other conditions that the Executive Officer, in consideration of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

(e) A variance shall cease to be effective upon failure of the party to whom the variance was granted to comply with any term or condition of the variance.

(f) Upon the application of any person, the Executive Officer may review, and for good cause, modify or revoke a variance from requirements of Section 94502 after holding a public hearing in accordance with the provisions of subsection (b).

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsection (b) filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
3. Amendment of subsection (b) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
4. Repealer of subsection (e) and subsection relettering filed 2-29-96; operative 3-30-96 (Register 96, No. 9).

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17 CCR § 94506

§ 94506. Test Methods.

(a)(1) Testing to determine the volatile organic compound content of an antiperspirant or deodorant, or to determine compliance with the requirements of this article, shall be performed using Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds (ROC) in Aerosol Coating Products, adopted September 25, 1997, and as last amended on May 25, 2018, which is incorporated herein by reference. Alternative methods which are shown to accurately determine the concentration of VOCs in a subject product or its emissions may be used upon approval of the Executive Officer.

(2) In sections 3.4 and 3.6 of Air Resources Board (ARB) Method 310, a process is specified for the “Initial Determination of VOC Content” and the “Final Determination of VOC Content”. This process is an integral part of testing procedures set forth in ARB Method 310, and is reproduced below:

Sections 3.4 and 3.6 of Air Resources Board Method 310

3.4 Initial Determination of VOC Content. The Executive Officer will determine the VOC content pursuant to sections 3.2 and 3.3. Only those components with concentrations equal to or greater than 0.1 percent by weight will be reported.

3.4.1 Using the appropriate formula specified in section 4.0, the Executive Officer will make an initial determination of whether the product meets the applicable VOC standards specified in ARB regulations. If initial results show that the product does not meet the applicable VOC standards, the Executive Officer may perform additional testing to confirm the initial results.

3.4.2 If the results obtained under section 3.4.1 show that the product does not meet the applicable VOC standards, the Executive Officer will request the responsible party to supply product formulation data. The responsible party shall supply the requested information. Information submitted to the ARB Executive Officer may be claimed as confidential; such information will be handled in accordance with the confidentiality procedures specified in [Title 17, CCR, Division 3, Chapter 1, Subchapter 4](#) (Disclosure of Public Records), sections 91000 to 91022.

3.4.3 If the information supplied by the responsible party shows that the product does not meet the applicable VOC standards, then the Executive Officer will take appropriate enforcement action.

3.4.4 If the responsible party fails to provide formulation data as specified in section 3.4.2, the initial determination of VOC content under this section 3.4 shall determine if the product is in compliance with the applicable VOC standards. This determination may be used to establish a violation of ARB regulations.

3.6 Final Determination of VOC Content. If a product's compliance status is not satisfactorily resolved under sections 3.4 and 3.5, the Executive Officer will conduct further analyses and testing as necessary to verify the formulation data.

3.6.1 If the accuracy of the supplied formulation data is verified and the product sample is determined to meet the applicable VOC standards, then no enforcement action for violation of the VOC standards will be taken.

3.6.2 If the Executive Officer is unable to verify the accuracy of the supplied formulation data, then the Executive Officer will request the responsible party to supply information to explain the discrepancy.

3.6.3 If there exists a discrepancy that cannot be resolved between the results of Method 310 and the supplied formulation data, then the results of Method 310 shall take precedence over the supplied formulation data. The results of Method 310 shall then determine if the product is in compliance with the applicable VOC standards, and may be used to establish a violation of ARB regulations.

(b) Testing to determine compliance with the requirements of this article may also be demonstrated through calculation of the volatile organic compound content from records of the amounts of constituents used to make the product. Compliance determination based on these records may not be used unless the responsible party of a consumer product keeps accurate records for each day of production of the amounts and chemical composition of the individual product constituents. These records must be kept for at least three years.

(c) No person shall create, alter, falsify, or otherwise modify records in such a way that the records do not accurately reflect the constituents used to manufacture a product, the chemical composition of the individual product, and any other tests, processes, or records used in connection with product manufacture.

Note: Authority cited: [Sections 39600, 39601, 39607, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39607, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-28-91; operative 2-27-91 (Register 91, No. 9).
2. Amendment of subsection (a) and adoption of subsection (b) filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
3. Amendment of subsection (b) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
4. New subsection (c) filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
5. Amendment of section and Note filed 11-13-97; operative 12-13-97 (Register 97, No. 46).

6. Amendment filed 11-16-99; operative 12-16-99 (Register 99, No. 47).
7. Amendment of subsection (a)(1) filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
8. Amendment of subsection (a)(1) filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).
9. Amendment of subsections (a)-(b) filed 12-31-2018; operative 1-1-2019 pursuant to [Government Code section 11343.4\(b\)\(3\)](#) (Register 2019, No. 1).

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17 CCR § 94506.5

§ 94506.5. Federal Enforceability.

For purposes of federal enforceability of this article, the Environmental Protection Agency is not subject to approval determinations made by the Executive Officer under Section 94503.5, 94505, or 94506. Within 180 days of a request from a person who has been granted an exemption or variance under Section 94503.5 or 94505, an exemption or variance meeting the requirements of the Clean Air Act shall be submitted by the Executive Officer to the Environmental Protection Agency for inclusion in the applicable implementation plan approved or promulgated by the Environmental Protection Agency pursuant to Section 110 of the Clean Air Act, [42 U.S.C., Section 7410](#). Prior to submitting an exemption granted under Section 94503.5 as a revision to the applicable implementation plan, the Executive Officer shall hold a public hearing on the proposed exemption. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Regulatory Notice Register and sent to the Environmental Protection Agency, every person who requests such notice, and to any person or group of persons whom the Executive Officer believes may be interested in the application. Within 30 days of the hearing the Executive Officer shall notify the applicant of the decision in writing as provided in Section 94503.5(f). The decision may approve, disapprove, or modify an exemption previously granted pursuant to Section 94503.5.

Note: Authority cited: [Sections 39600, 39601, 39602](#) and [41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39602, 40000](#) and [41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment filed 11-16-99; operative 12-16-99 (Register 99, No. 47).

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17 CCR § 94507

§ 94507. Applicability.

Except as provided in Sections 94509(i) and 94510, this article shall apply to any person who sells, supplies, offers for sale, or manufactures consumer products for use in the state of California.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Editorial correction deleting duplicate article heading (Register 92, No. 50).
4. Amendment filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).

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17 CCR § 94508

§ 94508. Definitions.

(a) For the purpose of this article, the following definitions apply:

(1) “Adhesive” means any product that is used to bond one surface to another by attachment. “Adhesive” does not include products used on humans and animals, adhesive tape, contact paper, wallpaper, shelf liners, or any other product with an adhesive incorporated onto or in an inert substrate. For “Contact Adhesive,” “Construction, Panel, or Floor Covering Adhesive,” and “General Purpose Adhesive” only, “Adhesive” also does not include units of product, less packaging, which weigh more than one pound and consist of more than 16 fluid ounces. This limitation does not apply to aerosol adhesives.

“Adhesive” includes the following categories (A-D):

(A) “Aerosol Adhesive” means any “Adhesive” packaged as an aerosol product in which the spray mechanism is permanently housed in a can designed for hand-held application without the need for ancillary hoses or spray equipment.

“Aerosol Adhesive” includes the following subcategories (1-3):

1. “Mist Spray Adhesive” means any “Aerosol Adhesive” which is not a “Special Purpose Spray Adhesive” and which delivers a particle or mist spray, resulting in the formation of fine, discrete particles that yield a generally uniform and smooth application of adhesive to the substrate.

2. “Special Purpose Spray Adhesive” means an “Aerosol Adhesive” that meets one of the following definitions:

a. “Automobile Headliner Adhesive” means an “Aerosol Adhesive” designed and labeled exclusively to bond together layers in motor vehicle headliners.

b. “Automotive Engine Compartment Adhesive” means an “Aerosol Adhesive” designed and labeled exclusively for use in motor vehicle under-the-hood applications which require oil and plasticizer resistance, as well as high shear strength, at temperatures of 200-275 degrees Fahrenheit.

c. “Flexible Vinyl Adhesive” means an “Aerosol Adhesive” designed and labeled exclusively to bond flexible vinyl to substrates. Flexible vinyl means a nonrigid polyvinyl chloride plastic with at least five

percent, by weight, of plasticizer content. A plasticizer is a material that is incorporated into a vinyl to increase its flexibility, workability, or distensibility, that may be determined using ASTM Method E260-91 (Jan. 25, 1991) Standard Practice for Packed Column Gas Chromatography, which is incorporated by reference herein, or from product formulation data.

d. "Laminate Repair/Edgebanding Adhesive" means an "Aerosol Adhesive" designed and labeled exclusively for:

- i. the touch-up or repair of items laminated with high pressure laminates (for example, lifted edges, delaminations, etc.), or for
- ii. the touch-up, repair, or attachment of edgebanding materials, including, but not limited to, other laminates, synthetic marble, veneers, wood molding, or decorative metals.

For the purposes of this definition "high pressure laminate" means sheet materials which consist of paper, fabric, or other core material that have been laminated at temperatures exceeding 265 degrees F, and at pressures between 1,000 and 1,400 psi.

e. "Mounting Adhesive" means an "Aerosol Adhesive" designed and labeled exclusively to permanently mount photographs, artwork, or any other drawn or printed media to a backing (paper, board, cloth, etc.) without causing discoloration to the artwork.

f. "Polyolefin Adhesive" means an "Aerosol Adhesive" designed and labeled exclusively to bond polyolefins (for example, polyethylene, polypropylene, etc.) to substrates.

g. "Polystyrene Foam Adhesive" means an "Aerosol Adhesive" designed and labeled exclusively to bond polystyrene foam (for example, Styrofoam®, expanded polystyrene foam, etc.) to substrates.

h. "Screen Printing Adhesive" means an "Aerosol Adhesive" designed and labeled exclusively to hold garments or fabric in place during the screen printing process.

3. "Web Spray Adhesive" means any "Aerosol Adhesive" which is not a "Mist Spray Adhesive" or "Special Purpose Spray Adhesive."

(B) "Construction, Panel, or Floor Covering Adhesive" means any nonaerosol, one-component "Adhesive" that is designed or labeled for the installation, remodeling, maintenance, or repair of: (A) structural and building components that include, but are not limited to, beams, trusses, studs, paneling (drywall or drywall laminates, fiberglass reinforced plastic (FRP), plywood, particle board, insulation board, pre-decorated hardboard or tileboard, etc.), ceiling and acoustical tile, molding, fixtures, countertops or countertop laminates, cove or wall bases, and flooring or subflooring; or (B) floor or wall coverings that include, but are not limited to, wood or simulated wood covering, carpet, carpet pad or cushion, vinyl-backed carpet, flexible flooring material, nonresilient flooring material, mirror tiles and other types of tiles, and artificial grass. "Construction, Panel, and Floor Covering Adhesive" does not include "Floor Seam Sealer."

(C) “Contact Adhesive” means a nonaerosol “Adhesive” that: (A) is designed for application to both surfaces to be bonded together, and (B) is allowed to dry before the two surfaces are placed in contact with each other, and (C) forms an immediate bond that is impossible, or difficult, to reposition after both adhesive-coated surfaces are placed in contact with each other, and (D) does not need sustained pressure or clamping of surfaces after the adhesive-coated surfaces have been brought together using sufficient momentary pressure to establish full contact between both surfaces. “Contact Adhesive” does not include rubber cements that are primarily intended for use on paper substrates. “Contact Adhesive” also does not include vulcanizing fluids that are designed and labeled for tire repair only.

“Contact Adhesive” is divided into two subcategories:

1. “Contact Adhesive - General Purpose” means any contact adhesive that is not a “Contact Adhesive - Special Purpose.”

2. “Contact Adhesive - Special Purpose” means a contact adhesive that: (A) is used to bond melamine-covered board, unprimed metal, unsupported vinyl, Teflon, ultra-high molecular weight polyethylene, rubber, high pressure laminate or wood veneer 1/16 inch or less in thickness to any porous or nonporous surface, and is sold in units of product, less packaging, that contain more than eight fluid ounces, or (B) is used in automotive applications that are (1.) automotive under-the-hood applications requiring heat, oil or gasoline resistance, or (2.) body-side molding, automotive weatherstrip or decorative trim.

(D) “General Purpose Adhesive” means any nonaerosol “Adhesive” designed for use on a variety of substrates. “General Purpose Adhesive” does not include (A) “Contact Adhesive,” (B) “Construction, Panel, or Floor Covering Adhesive,” (C) adhesives designed exclusively for application on one specific category of substrates (that is, substrates that are composed of similar materials, such as different types of metals, paper products, ceramics, plastics, rubbers, or vinyls), or (D) adhesives designed exclusively for use on one specific category of articles (that is, articles that may be composed of different materials but perform a specific function, such as gaskets, automotive trim, weather-stripping, or carpets).

(2) “Adhesive Remover” means a product designed to remove adhesive from either a specific substrate or a variety of substrates. “Adhesive Remover” does not include products that remove adhesives intended for use on humans or animals.

For the purpose of this definition and “Adhesive Remover” subcategories (A-D), the term “adhesive” shall mean a substance used to bond one or more materials. Adhesive includes, but is not limited to: caulks; sealants; glues; or similar substances used for the purpose of forming a bond.

(A) “Floor or Wall Covering Adhesive Remover” means a product designed or labeled to remove floor or wall coverings and associated adhesive from the underlying substrate.

(B) “Gasket or Thread Locking Adhesive Remover” means a product designed or labeled to remove gaskets or thread locking adhesives. Products labeled for dual use as a paint stripper and gasket remover and/or thread locking adhesive remover are considered “Gasket or Thread Locking Adhesive Remover.”

(C) “General Purpose Adhesive Remover” means a product designed or labeled to remove cyanoacrylate adhesives as well as nonreactive adhesives or residue from a variety of substrates. “General Purpose Adhesive Remover” includes, but is not

limited to, products that remove thermoplastic adhesives; pressure sensitive adhesives; dextrine or starch-based adhesives; casein glues; rubber or latex-based adhesives; as well as products that remove stickers; decals; stencils; or similar materials. “General Purpose Adhesive Remover” does not include “Floor or Wall Covering Adhesive Remover.”

(D) “Specialty Adhesive Remover” means a product designed to remove reactive adhesives from a variety of substrates. Reactive adhesives include adhesives that require a hardener or catalyst in order for the bond to occur. Examples of reactive adhesives include, but are not limited to: epoxies; urethanes; silicones. “Specialty Adhesive Remover” does not include “Gasket or Thread Locking Adhesive Remover.”

(3) “Aerosol Cooking Spray” means any aerosol product designed either to reduce sticking on cooking and baking surfaces or to be applied on food, or both.

(4) “Aerosol Product” means a pressurized spray system that dispenses product ingredients by means of a propellant contained in a product or a product's container, or by means of a mechanically induced force. “Aerosol Product” does not include “Pump Spray.”

(5) “Agricultural Use” means the use of any pesticide or method or device for the control of pests in connection with the commercial production, storage or processing of any animal or plant crop. “Agricultural Use” does not include the sale or use of pesticides in properly labeled packages or containers which are intended for: (A) Home use, (B) Use in structural pest control, or (C) Industrial or Institutional use. For the purposes of this definition only:

“Home use” means use in a household or its immediate environment.

“Structural pest control” means a use requiring a license under Chapter 14 (commencing with Section 8500), Division 3, of the Business and Professions Code.

“Industrial use” means use for or in a manufacturing, mining, or chemical process or use in the operation of factories, processing plants, and similar sites.

“Institutional use” means use within the confines of, or on property necessary for the operation of buildings such as hospitals, schools, libraries, auditoriums, and office complexes.

(6) “Air Freshener” means any product including, but not limited to, liquids, semisolids, solids, aerosol or pump sprays, wicks, wipes, diffusers, powders, or crystals, designed or labeled for the purpose of masking odors, or freshening, cleaning, scenting, or deodorizing the air. “Air Freshener” does not include products that are used on the human body, products that function primarily as cleaning products as indicated on a product label, “Odor Remover/Eliminator,” or “Toilet/Urinal Care Product.”

“Air Freshener” includes the following subcategories (A-C):

(A) “Double Phase Aerosol Air Freshener” means an aerosol “Air Freshener,” with the liquid contents in two or more distinct phases, that requires the product container be shaken before use to mix the phases, producing an emulsion.

(B) "Dual Purpose Air Freshener/Disinfectant" means an aerosol "Air Freshener" that is designed or labeled for use as both a "Disinfectant" and an "Air Freshener," or is so represented on any sticker, label, packaging, or literature attached to the product container.

(C) "Single Phase Aerosol Air Freshener" means an aerosol "Air Freshener" with the liquid contents in a single homogeneous phase which does not require that the product container be shaken before use .

(7) "Alkylphenol Ethoxylate" means, for the purpose of this regulation only, a nonionic surface active agent (surfactant) compound composed of an alkyl chain that contains at least eight carbon atoms and a polyethoxylate chain attached to a benzene ring. "Alkylphenol Ethoxylate" includes, but is not limited to, octylphenol ethoxylate with an alkyl chain consisting of eight carbon atoms and nonylphenol ethoxylate with an alkyl chain consisting of a nine carbon atoms.

(8) "All Other Carbon-Containing Compounds" means all other compounds which contain at least one carbon atom and are not a "Table B" or a "LVP-VOC."

(9) "All Other Forms" means all consumer product forms for which no form-specific VOC standard is specified. Unless specified otherwise by the applicable VOC standard, "all other forms" include, but are not limited to, solids, liquids (which includes the liquid containing or liquid impregnated portion of the cloth or paper wipes (towelettes), wicks, powders, and crystals.

(10) "Antimicrobial Hand or Body Cleaner or Soap" means a cleaner or soap which is designed to reduce the level of microorganisms on the skin through germicidal activity, and is regulated as an over-the-counter drug by the U.S. Food and Drug Administration. "Antimicrobial Hand or Body Cleaner or Soap" includes, but is not limited to, (A) antimicrobial hand or body washes/cleaners, (B) foodhandler hand washes, (C) healthcare personnel hand washes, (D) pre-operative skin preparations and (E) surgical scrubs. "Antimicrobial Hand or Body Cleaner or Soap" does not include prescription drug products, antiperspirants, "Astringent/Toner," deodorant, "Facial Cleaner or Soap," "General-use Hand or Body Cleaner or Soap," "Hand Dishwashing Detergent" (including antimicrobial), "Heavy-duty Hand Cleaner or Soap," "Medicated Astringent/Medicated Toner," and "Rubbing Alcohol."

(11) "Anti-Static Product" means a product that is labeled to eliminate, prevent, or inhibit the accumulation of static electricity. "Anti-Static Product" does not include "Electronic Cleaner," "Floor Polish or Wax," "Floor Coating," and products that meet the definition of "Aerosol Coating Product" or "Architectural Coating."

(12) "Architectural Coating" means a coating applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs.

(13) "Aromatic Compound" means a carbon containing compound that contains one or more benzene or equivalent heterocyclic rings and has an initial boiling point less than or equal to 280 °C. "Aromatic Compound" does not include compounds excluded from the definition of Volatile Organic Compound (VOC) in this Section 94508(a).

(14) "Artist's Solvent/Thinner" means any product, labeled to meet ASTM D4236 - 94 (March 1, 2005) Standard Practice for Labeling Art Materials for Chronic Health Hazards, which is incorporated by reference herein, and is packaged in

a container with a capacity equal to or less than 34 fluid ounces, and is labeled exclusively and explicitly to reduce the viscosity of, and or remove, art coating compositions or components.

(15) “ASTM” means ASTM International.

(16) “Astringent/Toner” means any product designed or labeled to be applied to the skin for the purpose of cleaning or tightening pores. This category also includes clarifiers and substrate-impregnated products. This category does not include any hand, face, or body cleaner or soap product, “Medicated Astringent/Medicated Toner,” cold cream, lotion, antiperspirant, or any Astrigent/Toner product regulated as a drug by the United States Food and Drug Administration (FDA).

(17) “Automotive Rubbing or Polishing Compound” means a product designed primarily to remove oxidation, old paint, scratches or “swirl marks,” and other defects from the painted surfaces of motor vehicles without leaving a protective barrier.

(18) “Automotive Wax, Polish, Sealant or Glaze” means a product designed to seal out moisture, increase gloss, or otherwise enhance a motor vehicle's painted surfaces. “Automotive Wax, Polish, Sealant or Glaze” includes, but is not limited to, products designed for use in autobody repair shops and “drive-through” car washes, as well as products designed for the general public. “Automotive Wax, Polish, Sealant or Glaze” does not include “Automotive Rubbing or Polishing Compound,” automotive wash and wax products, surfactant-containing car wash products, and products designed for use on unpainted surfaces such as bare metal, chrome, glass, or plastic. “Automotive Wax, Polish, Sealant or Glaze” products are subcategorized into “All Other Forms,” “Hard Paste Wax,” and “Instant Detailer.”

(A) “All Other Forms” subcategory consists of all automotive wax, polish, sealant or glaze products that are not either a “Hard Paste Wax” or “Instant Detailer.”

(B) “Hard Paste Wax” means a product which (A) is designed to protect and improve the appearance of automotive painted surfaces; (B) is a solid at room temperature; and (C) contains zero percent water by formulation.

(C) “Instant Detailer” means a product designed for use in a pump spray that is applied to the painted surface of automobiles and wiped off prior to the product being allowed to dry.

(19) “Automotive Windshield Washer Fluid” means any liquid dilutable or premixed product that is designed or labeled for use in a motor vehicle windshield washer fluid system either as an anti-freeze or for the purpose of cleaning, washing, bug removal, or wetting the windshield(s). “Automotive Windshield Washer Fluid” does not include any fluid which is placed in a new motor vehicle at the time the vehicle is manufactured.

For the purpose of complying with the requirements for “Automotive Windshield Washer Fluid,” the following definitions (A-D) apply:

(A) “Dilutable” means any product sold either in a container with a capacity of 10 gallons or more, or a container with a capacity of one quart or less.

(B) “Nontype “A” area” means all other areas of California that are not a “Type A area.”

(C) “Premixed” means any product sold in a container with a capacity that is greater than one quart, but less than 10 gallons.

(D) “Type “A” area” means:

1. Before July 1, 2013, the following regions of California: Del Norte, Shasta, and Trinity Counties; the Great Basin Valley, Lake Tahoe, Mountain Counties and Northeast Plateau Air Basins, as defined in [title 17, California Code of Regulations, sections 60105, 60108, 60111, and 60113](#).

2. On and after July 1, 2013, the counties listed in Table 94508(a)(20)(A), and areas defined by ZIP codes listed in Table 94508(a)(20)(B) below:

Table 94508(a)(20)(A) Counties that are Type “A” Areas

<i>Air Basin</i>	<i>Counties</i>
Great Basin Valleys	Alpine, Inyo, Mono
Lake Tahoe	El Dorado
Mountain Counties	Amador, Calaveras, El Dorado, Mariposa, Nevada, Plumas, Sierra, Tuolumne
Northeast Plateau	Lassen, Modoc, Siskiyou
North Coast	Del Norte, Trinity
Sacramento Valley	Shasta

Table 94508(a)(20)(B) Type “A” Areas Identified by ZIP Code

<i>County*</i>	<i>ZIP Code</i>
Butte	95954
Butte/Tehama	95942
Fresno	00017
Fresno	93621
Fresno	93628
Fresno	93664
Fresno/Tulare	93633

Glenn	00047
Humboldt	00050
Kern	00016
Kern	93255
Kern	93285
Kern/Ventura	93225
Kern	93226
Kern/Ventura/Santa Barbara/San Luis Obispo	93252
Madera	00020
Madera	93643
Madera	93644
Placer	95602(portion)**
Placer	95603(portion)**
Placer	95631(portion)**
Placer	95701
Placer	95703
Placer	95713
Placer	95714
Placer	95715
Placer	95717
Placer	95722
Placer	95724
Placer	96140
Placer	96141
Placer	96142
Placer	96143
Placer	96145
Placer	96146
Placer	96148

Placer	96161
Placer	96162
Riverside	92549
Riverside	92561
San Bernardino	91759
San Bernardino	92256
San Bernardino	92305
San Bernardino	92314
San Bernardino	92315
San Bernardino	92317
San Bernardino	92321
San Bernardino	92325
San Bernardino	92339
San Bernardino	92352
San Bernardino	92358
San Bernardino	92382
San Bernardino	92385
San Bernardino	92397
San Diego	91962
Santa Barbara	00032
Tehama	00037
Tehama	00038
Tehama	96063
Tulare	00026
Tulare	93260
Tulare	93262
Tulare	93265
Tulare	93271

* County name is provided as a point of reference only. Except as specified for ZIP codes 95602, 95603, and 95631, all portions of the identified ZIP codes are Type “A” areas.

** Only the portion of ZIP codes 95602, 95603, and 95631 that lie to the east of Range 9 east, Mount Diablo Baseline and Meridian.

(20) “Bathroom and Tile Cleaner” means a product designed or labeled to clean tile or surfaces in bathrooms. “Bathroom and Tile Cleaner” does not include “Toilet/Urinal Care Product.”

(21) “Brake Cleaner” means a cleaning product designed or labeled to remove oil, grease, brake fluid, brake pad material or dirt from motor vehicle brake mechanisms.

(22) “Bug and Tar Remover” means a product labeled to remove either or both of the following from painted motor vehicle surfaces without causing damage to the finish: (A) biological-type residues such as insect carcasses and tree sap and, (B) road grime, such as road tar, roadway paint markings, and asphalt.

(23) “California Sales” means the sales (net pounds of product, less packaging and container, per year) in California for either the calendar year immediately prior to the year that the information required by the Executive Officer pursuant to section 94513 (required information) is due or, if that data is not available, any consecutive 12 month period commencing no earlier than 2 years prior to the due date of the required information. If direct sales data for California is not available, sales may be estimated by prorating national or regional sales data by population.

(24) “Carburetor or Fuel-Injection Air Intake Cleaners” means a product designed or labeled to remove fuel deposits, dirt, or other contaminants from a carburetor, choke, throttle body of a fuel-injection system, or associated linkages. “Carburetor or Fuel-injection Air Intake Cleaner” does not include products designed or labeled exclusively to be introduced directly into the fuel lines or fuel storage tank prior to introduction into the carburetor or fuel injectors, or products designed or labeled exclusively to be introduced during engine operation directly into air intake vacuum lines by using a pressurized sprayer wand.

(25) “Carpet/Upholstery Cleaner” means a cleaning product designed or labeled for the purpose of eliminating dirt or stains in rugs, carpeting, or objects upholstered or covered with fabrics such as wool, cotton, nylon or other synthetic fabrics. “Carpet/Upholstery Cleaner” includes, but is not limited to, products used on household furniture, the interior of motor vehicles, and products that make “Fabric Protectant” claims. “Carpet/Upholstery Cleaner” does not include “Spot Remover,” vinyl or leather cleaners, “Dry Cleaning Fluid,” or products designed exclusively for use at industrial facilities engaged in furniture or carpet manufacturing.

(26) “Charcoal Lighter Material” means any combustible material designed to be applied on, incorporated in, added to, or used with charcoal to enhance ignition. “Charcoal Lighter Material” does not include any of the following: (A) electrical starters and probes, (B) metallic cylinders using paper tinder, (C) natural gas, (D) propane, and (E) fat wood.

(27) “Colorant” means any pigment or coloring material used in a consumer product for an aesthetic effect, or to dramatize an ingredient.

(28) “Consumer” means any person who seeks, purchases, or acquires any consumer product for personal, family, household, or institutional use. Persons acquiring a consumer product for resale are not “consumers” for that product.

(29) “Consumer Product” means a chemically formulated product used by household and institutional consumers including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings. As used in this article, the term “consumer product” shall also refer to aerosol adhesives, including aerosol adhesives used for consumer, industrial, and commercial uses.

(30) “Container/Packaging” means the part or parts of the consumer or institutional product which serve only to contain, enclose, incorporate, deliver, dispense, wrap or store the chemically formulated substance or mixture of substances which is solely responsible for accomplishing the purposes for which the product was designed or intended. “Container/Packaging” includes any article onto or into which the principal display panel and other accompanying literature or graphics are incorporated, etched, printed or attached.

(31) “Deodorant Body Spray” means a “Personal Fragrance Product” with 20 percent or less fragrance, that is designed for application all over the human body to provide a scent. A “Deodorant Body Spray” product that indicates or depicts on the container or packaging, or on any sticker or label affixed thereto, that it can be used on or applied to the human axilla, is a “Deodorant” as defined in section 94501(d).

(32) “Device” means any instrument or contrivance (other than a firearm) which is designed for trapping, destroying, repelling, or mitigating any pest or any other form of plant or animal life (other than man and other than bacteria, virus, or other microorganism on or in living man or other living animals); but not including equipment used for the application of pesticides when sold separately therefrom.

(33) “Disinfectant” means a product that is labeled as a “disinfectant”, or is labeled to destroy or irreversibly inactivate infectious or other undesirable bacteria, pathogenic fungi, or viruses on surfaces or inanimate objects and whose label is registered as a “disinfectant” under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, [7 U.S.C. 136, et seq.](#)). Products that are labeled as both a “sanitizer” and a “disinfectant” are considered disinfectants. “Disinfectant” does not include any of the following: (A) products labeled solely for use on humans or animals, (B) products labeled solely for agricultural use, (C) products labeled solely for use in swimming pools, therapeutic tubs, or hot tubs, (D) products which are labeled to be used on heat sensitive critical or semi-critical medical devices or medical equipment surfaces, (E) products which are pre-moistened wipes or towelettes sold exclusively to medical, convalescent, or veterinary establishments, (F) products which are labeled to be applied to food-contact surfaces and are not required to be rinsed prior to contact with food, or (G) products which are labeled as “Bathroom and Tile Cleaner,” “Glass Cleaner,” “General Purpose Cleaner,” “Toilet/Urinal Care Product,” “Metal Polish or Cleanser,” “Carpet Cleaner,” or “Fabric Refresher” that may also make disinfecting or antimicrobial claims on the label.

(34) “Distributor” means any person to whom a consumer product is sold or supplied for the purposes of resale or distribution in commerce, except that manufacturers, retailers, and consumers are not distributors.

(35) “Dry Cleaning Fluid” means any nonaqueous solvent that is (A) used in dry-cleaning machines at commercial dry cleaners or used by commercial businesses that clean fabrics such as draperies at the customer's residence or work place;

and (B) is designed and labeled exclusively to clean: (1) fabrics which are labeled “for dry clean only,” such as clothing or drapery; or (2) “S-coded” fabrics. “Dry Cleaning Fluid” includes, but is not limited to, those products used by commercial dry cleaners and commercial businesses that clean fabrics such as draperies at the customer's residence or work place. “Dry Cleaning Fluid” does not include “Spot Remover” or “Carpet/Upholstery Cleaner.” For the purposes of this definition, S-coded fabric means an upholstery fabric designed to be cleaned only with water-free spot cleaning products as specified by the Joint Industry Fabric Standards Committee.”

(36) “Dusting Aid” means a product designed or labeled to assist in removing dust and other soils from floors and other surfaces without leaving a wax or silicone based coating. “Dusting Aid” does not include “Pressurized Gas Duster.”

(37) “Electrical Cleaner” means a product labeled to remove heavy soils such as grease, grime, or oil from electrical equipment, including, but not limited to, electric motors, armatures, relays, electric panels, or generators. Electrical Cleaner does not include “General Purpose Cleaner,” “General Purpose Degreaser,” “Dusting Aid,” “Electronic Cleaner,” “Energized Electrical Cleaner,” “Pressurized Gas Duster,” “Engine Degreaser,” “Anti-Static Product,” or products designed to clean the casings or housings of electrical equipment.

(38) “Electronic Cleaner” means a product labeled for the removal of dirt, moisture, dust, flux, or oxides from the internal components of electronic or precision equipment such as circuit boards, and the internal components of electronic devices, including but not limited to, radios, compact disc (CD) players, digital video disc (DVD) players, and computers. “Electronic Cleaner” does not include “General Purpose Cleaner,” “General Purpose Degreaser,” “Dusting Aid,” “Pressurized Gas Duster,” “Engine Degreaser,” “Electrical Cleaner,” “Energized Electrical Cleaner,” “Anti-Static Product,” or products labeled to clean the casings or housings of electronic equipment. “Electronic Cleaner” does not include any product that meets both of the following criteria:

(1) the product is labeled to clean and/or degrease electronic equipment, where cleaning and/or degreasing is accomplished when electrical current exists, or when there is a residual electrical potential from a component;

(2) the product label clearly displays the statements: “Energized Electronic Equipment use only.”

(39) “Energized Electrical Cleaner” means a product that meets both of the following criteria:

(1) the product is labeled to clean and/or degrease electrical equipment, where cleaning and/or degreasing is accomplished when electrical current exists, or when there is a residual electrical potential from a component, such as a capacitor;

(2) the product label clearly displays the statements: “Energized Equipment use only. Not to be used for motorized vehicle maintenance, or their parts.”

“Energized Electrical Cleaner” does not include “Electronic Cleaner.”

(40) “Engine Degreaser” means a cleaning product designed or labeled to remove grease, grime, oil and other contaminants from the external surfaces of engines and other mechanical parts.

(41) “Executive Officer” means the Executive Officer of the Air Resources Board, or his or her delegate.

(42) “Existing Product” means any formulation of the same product category and form sold, supplied, manufactured, or offered for sale in California prior to the following dates, or any subsequently introduced identical formulation:

(A) October 21, 1991, for all products listed in section 94509(a) that have initial effective dates of January 1, 1993, or January 1, 1994;

(B) January 6, 1993, for all products listed in section 94509(a) that have initial effective dates of January 1, 1995, or January 1, 1997, and charcoal lighter materials subject to section 94509(h);

(C) August 16, 1998, for all products listed in section 94509(a) that have initial effective dates of January 1, 2001, January 1, 2002, January 1, 2003, or January 1, 2005;

(D) November 19, 2000, for all products in the following product categories listed in section 94509(a): “Nonaerosol General Purpose Degreaser,” “Sealant and Caulking Compound,” and “Tire Sealant and Inflator.”

(E) July 20, 2005, for all products listed in section 94509(a) that have an effective date of December 31, 2006, December 31, 2008, or December 31, 2009; and

(F) December 8, 2007, all products listed in section 94509(a) that have an initial effective date of December 31, 2008, or December 31, 2010 for Brake Cleaner, Carburetor or Fuel-Injection Air Intake Cleaner, Aerosol Engine Degreaser, Resilient Flooring Material, Nonresilient Flooring Material, Aerosol General Purpose Degreaser, and Aerosol Temporary Hair Color.

(G) July 18, 2009, for all products listed in section 94509(a) that have an initial effective date of December 31, 2010, or December 31, 2012, December 31, 2013, or December 31, 2014.

(H) October 20, 2010, for “Multi-purpose Solvent” and “Paint Thinner.”

(I) December 10, 2011 for “Anti-Seize Lubricant,” “Cutting or Tapping Oil,” “Gear, Chain, or Wire Lubricant,” and “Rust Preventative or Rust Control Lubricant.”

(43) “Fabric Protectant” means a product designed or labeled to be applied to fabric substrates to protect the surface from soiling from dirt or other impurities or to reduce absorption of liquid into the fabric's fibers. “Fabric Protectant” does not include “Waterproofing,” products labeled for use solely on leather; pigmented products that are designed or labeled to be used primarily for coloring; products used for construction, reconstruction, modification, structural maintenance or repair of fabric substrates; or products that renew or restore fabric. “Fabric Protectant” also does not include “Clear Coating” or “Vinyl/Fabric/Leather/Plastic Coating” as defined in section 94521(a).

(44) “Fabric Refresher” means a product labeled to neutralize or eliminate odors on nonlaundered fabric including, but not limited to, soft household surfaces, rugs, carpeting, draperies, bedding, automotive interiors, footwear, athletic equipment, clothing and/or on household furniture or objects upholstered or covered with fabrics such as, but not limited to, wool, cotton, or nylon. “Fabric Refresher” does not include “Anti-static Product,” “Carpet/Upholstery Cleaner,” “Footwear or Leather Care Product,” “Spot Remover,” or “Disinfectant,” or products labeled for application to both fabric and human skin.

(45) “Fabric Softener-Single Use Dryer Product” means a laundry care product designed or labeled for single use in the clothes dryer to impart softness to, or control static cling of, a load of washable fabrics; and may impart a fragrance or scent. For the purpose of this definition only, “single use” means a product that is intended for one time use during a single drying cycle and is removed after completion of the drying cycle. A “load” is the amount of washable fabrics in a single drying cycle. “Fabric Softener-Single Use Dryer Product” includes treated nonwoven sheets which are typically packaged in boxes with a multiple number of sheets. “Fabric Softener-Single Use Dryer Product” does not include products applied to washable fabrics prior to placing the washable fabrics in the clothes dryer.

(46) “Facial Cleaner or Soap” means a cleaner or soap designed primarily to clean the face. “Facial Cleaner or Soap” includes, but is not limited to, facial cleansing creams, semisolids, liquids, lotions, and substrate-impregnated forms. “Facial Cleaner or Soap” does not include prescription drug products, “Antimicrobial Hand or Body Cleaner or Soap,” “Astringent/Toner,” “General-use Hand or Body Cleaner or Soap,” “Medicated Astringent/Medicated Toner,” or “Rubbing Alcohol.”

(47) “Fat Wood” means pieces of wood kindling with high naturally-occurring levels of sap or resin which enhance ignition of the kindling. “Fat wood” does not include any kindling with substances added to enhance flammability, such as wax-covered or wax-impregnated wood-based products.

(48) “Floor Coating” means an opaque coating that is labeled and designed for application to flooring, including but not limited to, decks, porches, steps, and other horizontal surfaces which may be subject to foot traffic.

(49) “Floor Maintenance Product” means any product designed or labeled to restore, maintain, or enhance a previously applied floor finish. “Floor Maintenance Product” includes, but is not limited to, products that are labeled as Spray Buff products or Floor Maintainers or Restorers. “Floor Maintenance Product” does not include floor polish products, products designed solely for the purpose of cleaning, products designed or labeled exclusively for use on marble floors, or coatings subject to architectural coatings regulations.

(50) “Floor Polish or Wax” means a product designed or labeled to polish, wax, condition, protect, temporarily seal, or otherwise enhance floor surfaces by leaving a protective finish that is designed or labeled to be periodically replenished. “Floor Polish or Wax” does not include “Floor Maintenance Products,” “Floor Wax Stripper,” or coatings subject to architectural coatings regulations.

“Floor Polish or Wax” is divided into three subcategories: products for resilient flooring materials, products for nonresilient flooring materials and wood floor wax. For the purposes of this article:

(A) “Resilient Flooring Material” means flexible flooring material including but is not limited to, asphalt, cork, linoleum, no-wax, rubber, seamless vinyl, and vinyl composite flooring.

(B) “Nonresilient Flooring Material” means flooring of a mineral content which is not flexible. “Nonresilient Flooring material” includes but is not limited to terrazzo, marble, slate, granite, brick, stone, ceramic tile, and concrete.

(C) “Wood Floor Wax” means any wax-based product designed or labeled for use solely on wood floors. “Wood Floor Wax” does not include products that make the claim to “clean and wax” or “clean and polish.”

(51) “Floor Seam Sealer” means any product designed and labeled exclusively for bonding, fusing, or sealing (coating) seams between adjoining rolls of installed flexible sheet flooring.

(52) “Floor Wax Stripper” means a product designed to remove natural or synthetic floor polishes or waxes through breakdown of the polish or wax polymers, or by dissolving or emulsifying the polish or wax. “Floor Wax Stripper” does not include aerosol floor wax strippers or products designed to remove floor wax solely through abrasion.

(53) “Footwear or Leather Care Product” means any product designed or labeled to be applied to footwear or to other leather articles/components, to maintain, enhance, clean, protect, or modify the appearance, durability, fit, or flexibility of the footwear or leather article/component. Footwear includes both leather and nonleather foot apparel. “Footwear or Leather Care Product” does not include “Fabric Protectant,” “General Purpose Adhesive,” “Contact Adhesive,” “Vinyl/Fabric/Leather/Plastic Coating,” as defined in section 94521(a), “Rubber/Vinyl Protectant,” “Fabric Refresher,” products solely for deodorizing, or sealant products with adhesive properties used to create external protective layers greater than 2 millimeters thick.

(54) “Fragrance” means a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapor pressure not in excess of 2 mm of Hg at 20 °C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor.

(55) “Furniture Maintenance Product” means a wax, polish, conditioner, or any other product labeled for the purpose of polishing, protecting or enhancing finished wood surfaces other than floors, and other furniture surfaces including but not limited to acrylics, ceramic, plastics, stone surfaces, metal surfaces, and fiberglass. “Furniture Maintenance Product” does not include “Dusting Aid,” “Wood Cleaner,” and products designed solely for the purpose of cleaning, or products designed to leave a permanent finish such as stains, sanding sealers and lacquers.

(56) “Furniture Coating” means any paint designed for application to room furnishings including, but not limited to, cabinets (kitchen, bath and vanity), tables, chairs, beds, and sofas.

(57) “Gel” means a colloid in which the disperse phase has combined with the continuous phase to produce a semisolid material, such as jelly.

(58) “General Purpose Cleaner” means:

(A) for products manufactured before January 1, 2015: a product labeled to clean a variety of hard surfaces. “General Purpose Cleaner” includes, but is not limited to, products designed or labeled for general floor cleaning, kitchen, countertop,

or sink cleaning, and cleaners designed or labeled to be used on a variety of hard surfaces such as stovetops, cooktops, or microwaves.

(B) for products manufactured on or after January 1, 2015: a product that is designed or labeled to clean hard surfaces in homes, garages, patios, commercial, or institutional environments. “General Purpose Cleaner” includes products that clean kitchens, sinks, appliances, counters, walls, cabinets or floors and products that claim to clean a variety of similar surfaces such as plastics, stone or metal. “General Purpose Cleaner” does not include “Single Purpose Cleaner” or “Furniture Maintenance Product.”

(59) “General Purpose Degreaser” means:

(A) for products manufactured before December 31, 2012: any product labeled to remove or dissolve grease, grime, oil and other oil-based contaminants from a variety of substrates, including automotive or miscellaneous metallic parts. “General Purpose Degreaser” does not include “Engine Degreaser,” “General Purpose Cleaner,” “Adhesive Remover,” “Electronic Cleaner,” “Electrical Cleaner,” “Energized Electrical Cleaner,” and “Metal Polish or Cleanser.” “General Purpose Degreaser” also does not include products used exclusively in “solvent cleaning tanks or related equipment”, or products that are (A) sold exclusively to establishments which manufacture or construct goods or commodities; and (B) labeled “not for retail sale.” “Solvent cleaning tanks or related equipment” includes, but is not limited to, cold cleaners, vapor degreasers, conveyorized degreasers, film cleaning machines, or products designed to clean miscellaneous metallic parts by immersion in a container.

(B) for products manufactured on or after December 31, 2012, but before January 1, 2015: any product labeled to remove or dissolve grease, grime, oil and other oil-based contaminants from a variety of substrates, including automotive or miscellaneous metallic parts. “General Purpose Degreaser” does not include “Adhesive Remover,” “Electrical Cleaner,” “Electronic Cleaner,” “Energized Electrical Cleaner,” “Engine Degreaser,” “General Purpose Cleaner,” “Metal Polish or Cleanser,” or “Oven or Grill Cleaner.” “General Purpose Degreaser” also does not include products used exclusively in “solvent cleaning tanks or related equipment,” or products that are (A) exclusively sold directly or through distributors to establishments which manufacture or construct goods or commodities; and (B) labeled exclusively for “use in the manufacturing process only.” “Solvent cleaning tanks or related equipment” includes, but is not limited to, cold cleaners, vapor degreasers, conveyorized degreasers, film cleaning machines, or products designed to clean miscellaneous metallic parts by immersion in a container.

(C) for products manufactured on or after January 1, 2015: any product that is designed or labeled to remove or dissolve grease, grime, oil or other oil-based contaminants from a variety of substrates, including automotive or miscellaneous metallic parts. “General Purpose Degreaser” does not include “Adhesive Remover,” “Electrical Cleaner,” “Electronic Cleaner,” “Energized Electrical Cleaner,” “Engine Degreaser,” “General Purpose Cleaner,” “Metal Polish or Cleanser,” “Oven or Grill Cleaner,” or “Single Purpose Degreaser.” “General Purpose Degreaser” also does not include products used exclusively in “solvent cleaning tanks or related equipment,” or products that are (A) exclusively sold directly or through distributors to establishments which manufacture or construct goods or commodities; and (B) labeled exclusively for “use in the manufacturing process only.” “Solvent cleaning tanks or related equipment” includes, but is not limited to, cold cleaners, vapor degreasers, conveyorized degreasers, film cleaning machines, or products designed to clean miscellaneous metallic parts by immersion in a container.

(60) “General-use Hand or Body Cleaner or Soap” means a cleaner or soap designed to be used routinely on the skin to clean or remove typical or common dirt and soils. “General-use Hand or Body Cleaner or Soap” includes, but is not limited to, hand

or body washes, dual-purpose shampoo-body cleaners, shower or bath gels, and moisturizing cleaners or soaps. “General-use Hand or Body Cleaner or Soap” does not include prescription drug products, “Antimicrobial Hand or Body Cleaner or Soap,” “Astringent/Toner,” “Facial Cleaner or Soap,” “Hand Dishwashing Detergent” (including antimicrobial), “Heavy-duty Hand Cleaner or Soap,” “Medicated Astringent/Medicated Toner,” or “Rubbing Alcohol.”

(61) “Glass Cleaner” means a cleaning product designed or labeled primarily for cleaning surfaces made of glass. “Glass Cleaner” does not include products designed or labeled solely for the purpose of cleaning optical materials used in eyeglasses, photographic equipment, scientific equipment and photocopying machines.

(62) “Global Warming Potential (GWP)” means the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time.

(63) “Global Warming Potential Value” or “GWP Value” means the global warming potential value of a chemical or compound as specified in the IPCC: 1995 Second Assessment Report (SAR), Table 2.14, in Climate Change 2007: The Physical Sciences Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, which is incorporated by reference herein.

If Table 2.14 does not contain a SAR 100-year GWP Value for a specific chemical or compound, then the 100-year GWP Value in Table 2.14 for that chemical or compound shall be used. If there is no 100-year GWP Value for a chemical or compound listed in Table 2.14 or GWP Value listed in Table 2.15, then the GWP Value is assumed to be equal to the GWP limit of the applicable product category.

(64) “Graffiti Remover” means a product labeled to remove spray paint, ink, marker, crayon, lipstick, nail polish, or shoe polish, from a variety of noncloth or nonfabric substrates. “Graffiti Remover” does not include “Paint Remover or Stripper,” “Nail Polish Remover,” or “Spot Remover.” Products labeled for dual use as both a paint stripper and graffiti remover are considered “Graffiti Removers.”

(65) “Gum or Candle Wax Remover” means a product designed or labeled exclusively to remove chewing gum and/or candle wax from soft surfaces such as carpet, rugs, upholstery, or fabric.

(66) “Hair Finishing Spray” means a consumer product that is designed or labeled for application to styled hair to provide sufficient rigidity, to hold, retain or finish the style of the hair for a period of time. “Hair Finishing Spray” includes aerosol hair sprays, pump hair sprays, spray waxes; color, glitter, or sparkle hair sprays that make finishing claims; and products that are both a styling and finishing product. “Hair Finishing Spray” does not include spray products that are intended to aid in styling but do not provide finishing of a hair style.

For the purposes of this subchapter, “finish” or “finishing” means the maintaining and/or holding of previously styled hair for a period of time.

For the purposes of this subchapter, “styling” means the forming, sculpting, or manipulating the hair to temporarily alter the hair's shape.

(67) “Hair Mousse” means a hairstyling foam designed to facilitate styling of a coiffure and provide limited holding power.

(68) “Hair Shine” means any product designed for the primary purpose of creating a shine when applied to the hair. “Hair Shine” includes, but is not limited to, dual-use products designed primarily to impart a sheen to the hair. “Hair Shine” does not include “Hair Finishing Spray,” “Hair Mousse,” “Hair Styling Product,” or products whose primary purpose is to condition or hold the hair.

(69) “Hair Styling Product” means a consumer product that is designed or labeled for the application to wet, damp or dry hair to aid in defining, shaping, lifting, styling and/or sculpting of the hair. “Hair Styling Product” includes, but is not limited to hair balm, clay, cream, creme, curl straightener, gel, liquid, lotion, paste, pomade, putty, root lifter, serum, spray gel, stick, temporary hair straightener, wax, spray products that aid in styling but do not provide finishing of a hair style, and leave-in volumizers, detanglers and/or conditioners that make styling claims. “Hair Styling Product” does not include “No Rinse Shampoo,” “Thermal Protectant,” “Hair Mousse,” “Hair Shine,” “Hair Finishing Spray,” or shampoos or conditioners that are rinsed from the hair prior to styling.

For the purposes of this subchapter, “finish” or “finishing” means the maintaining and/or holding of previously styled hair for a period of time.

For the purposes of this subchapter, “styling” means the forming, sculpting, or manipulating the hair to temporarily alter the hair's shape.

(70) “Heavy-Duty Hand Cleaner or Soap” means a product designed to clean or remove difficult dirt and soils such as oil, grease, grime, tar, shellac, printer's ink, paint, graphite, cement, carbon, asphalt, or adhesives from the hand with or without the use of water. “Heavy-duty Hand Cleaner or Soap” does not include prescription drug products, “Antimicrobial Hand or Body Cleaner or Soap,” “Astringent/Toner,” “Facial Cleaner or Soap,” “General-use Hand or Body Cleaner or Soap,” “Medicated Astringent/Medicated Toner” or “Rubbing Alcohol.”

(71) “Herbicide” means a pesticide product designed to kill or retard a plant's growth, but excludes products that are: (A) for agricultural use, or (B) restricted materials that require a permit for use and possession.

(72) “High-Temperature Coating” means a high performance coating labeled and formulated for application to substrates exposed continuously or intermittently to temperatures above 204 °C (400 °F).

(73) “Household Product” means any consumer product that is primarily designed to be used inside or outside of living quarters or residences that are occupied or intended for occupation by individuals, including the immediate surroundings.

(74) “Industrial Maintenance Coating” means a high performance architectural coating, including primers, sealers, undercoaters, intermediate coats, and topcoats formulated for application to substrates, including floors, exposed to one or more of the following extreme environmental conditions listed below and labeled “For industrial use only,” “For professional use only,” “Not for residential use,” or “Not intended for residential use.”

(A) Immersion in water, wastewater, or chemical solutions (aqueous and nonaqueous solutions), or chronic exposure of interior surfaces to moisture condensation; or

(B) Acute or chronic exposure to corrosive, caustic or acidic agents, or to chemicals, chemical fumes, or chemical mixtures or solutions; or

(C) Frequent exposure to temperatures above 121 °C (250 °F); or

(D) Frequent heavy abrasion, including mechanical wear and frequent scrubbing with industrial solvents, cleansers, or scouring agents; or

(E) Exterior exposure of metal structures and structural components.

(75) “Insect Repellent” means a pesticide product that is designed to be applied on human skin, hair or attire worn on humans in order to prevent contact with or repel biting insects or arthropods.

(76) “Insecticide” means a pesticide product that is designed for use against insects or other arthropods, but excluding products that are: for agricultural use, or for a use which requires a structural pest control license under Chapter 14 (commencing with [Section 8500](#)) of the [Business and Professions Code](#), or restricted materials that require a permit for use and possession.

“Insecticide” includes the following subcategories (A-F):

(A) “Crawling Bug Insecticide” means any insecticide product that is designed for use against ants, cockroaches, or other household crawling arthropods, such as mites, silverfish or spiders. “Crawling Bug Insecticide” does not include products designed to be used exclusively on humans or animals, or any house dust mite product. For the purposes of this definition only:

“House dust mite product” means a product whose label, packaging, or accompanying literature states that the product is suitable for use against house dust mites, but does not indicate that the product is suitable for use against ants, cockroaches, or other household crawling arthropods.

“House dust mite” means mites which feed primarily on skin cells shed in the home by humans and pets and which belong to the phylum Arthropoda, the subphylum Chelicerata, the class Arachnida, the subclass Acari, the order Astigmata, or the family Pyroglyphidae.

(B) “Flea or Tick Insecticide” means any insecticide product that is designed for use against fleas, ticks, their larvae, or their eggs. “Flea or Tick Insecticide” does not include products that are designed to be used exclusively on humans or animals or their bedding.

(C) “Flying Bug Insecticide” means any insecticide product that is designed for use against flying insects or other flying arthropods such as flies, mosquitoes, moths, or gnats. “Flying Bug Insecticide” does not include “Wasp or Hornet Insecticide,” products that are designed to be used exclusively on humans or animals, or any moth-proofing product. For the purposes of this definition only, “moth-proofing product” means a product whose label, packaging, or accompanying literature indicates that the product is designed to protect fabrics from damage by moths, but does not indicate that the product is suitable for use against flying insects or other flying arthropods.

(D) “Insecticide Fogger” means any insecticide product designed to release all or most of its content, as a fog or mist, into indoor areas during a single application.

(E) “Lawn or Garden Insecticide” means an insecticide product labeled primarily to be used in household lawn or garden areas to protect plants from insects or other arthropods. Notwithstanding the requirements of section 94512(a) aerosol “Lawn or Garden Insecticide” may claim to kill insects or other arthropods.

(F) “Wasp or Hornet Insecticide” means any insecticide product that is designed for use against wasps, hornets, yellow jackets or bees by allowing the user to spray from a distance a directed stream or burst at the intended insects, or their hiding place.

(77) “Institutional Product” or “Industrial and Institutional (I&I) Product” means a consumer product that is designed for use in the maintenance or operation of an establishment that: (A) manufactures, transports, or sells goods or commodities, or provides services for profit; or (B) is engaged in the nonprofit promotion of a particular public, educational, or charitable cause. “Establishments” include, but are not limited to, government agencies, factories, schools, hospitals, sanitariums, prisons, restaurants, hotels, stores, automobile service and parts centers, health clubs, theatres, or transportation companies. “Institutional Product” does not include household products and products that are incorporated into or used exclusively in the manufacture or construction of the goods or commodities at the site of the establishment.

(78) “Label” means any written, printed, or graphic matter affixed to, applied to, attached to, blown into, formed, molded into, embossed on, or appearing upon any consumer product or consumer product package, for purposes of branding, identifying, or giving information with respect to the product or to the contents of the package.

(79) “Laundry Prewash” means a product that is designed for application to a fabric prior to laundering in a wet-cleaning process, and that supplements and contributes to the effectiveness of laundry detergents and/or provides specialized performance.

(80) “Laundry Starch/Sizing/Fabric Finish Product” means a product that is labeled for application to a fabric, either during or after laundering, to impart and prolong a crisp, fresh look and may also act to help ease ironing of the fabric. “Laundry Starch/Sizing/Fabric Finish Product” includes, but is not limited to, starch, sizing, and fabric finish.

(81) “Liquid” means a substance or mixture of substances which is capable of a visually detectable flow as determined under ASTM D-4359-90 (May 25, 1990) Standard Test Method for Determining Whether a Material Is a Liquid or a Solid, which is incorporated by reference herein. “Liquid” does not include powders or other materials that are composed entirely of solid particles.

(82) “Lubricant” means:

(A) for products manufactured before December 31, 2012: a product that reduces friction, heat, noise, or wear between moving parts, or loosens rusted or immovable parts or mechanisms. “Lubricant” does not include automotive power steering fluids; products designed and labeled exclusively to release manufactured products from molds; products for use inside power generating motors, engines, and turbines, and their associated power-transfer gearboxes; two cycle oils or

other products designed to be added to fuels; products for use on the human body or animals or products that are (1) sold exclusively to establishments which manufacture or construct goods or commodities, and (2) labeled “not for retail sale.”

(B) for products manufactured on or after December 31, 2012: a product that reduces friction, heat, noise, or wear between moving parts, or loosens rusted or immovable parts or mechanisms. “Lubricant” does not include automotive power steering fluids; products designed and labeled exclusively to release manufactured products from molds; products for use inside power generating motors, engines, and turbines, and their associated power-transfer gearboxes; two cycle oils or other products designed to be added to fuels; products for use on the human body or animals; or products that are (1) exclusively sold directly or through distributors to establishments which manufacture or construct goods or commodities, and (2) labeled exclusively for “use in the manufacturing process only.” “Lubricant” includes products labeled for use in food-servicing environments that include, but are not limited to, restaurants and food stores.

(C) “Lubricant” includes the following subcategories (1.-9.):

1. “Anti-seize Lubricant” means any “Lubricant” designed or labeled exclusively for use in high temperature or high pressure conditions to prevent moving metal parts from seizing or galling, and/or to facilitate disassembly of metal parts. A lubricant that meets the definition for “Firearm Lubricant” is not an “Anti-seize Lubricant.”
2. “Cutting or Tapping Oil” means any “Lubricant” designed or labeled exclusively for drilling, cutting, or tapping metals.
3. “Dry Lubricant” means any “Lubricant” which provides lubricity solely by depositing a thin film of solid material including, but not limited to, graphite, molybdenum disulfide (“moly”), polytetrafluoroethylene or closely related fluoropolymer (“teflon”), or boron nitride on surfaces. Products that meet the definition for “Dry Lubricant” are not subject to the requirements for “Anti-seize Lubricant,” “Cutting or Tapping Oil,” “Gear, Chain, or Wire Lubricant,” “Multi-purpose Lubricant,” “Penetrant,” “Rust Preventative or Rust Control Lubricant,” or “Silicone-based Multi-purpose Lubricant.”
4. “Firearm Lubricant” means any “Lubricant” designed or labeled exclusively for use on firearms or their parts to lubricate or to provide corrosion or rust prevention.
5. “Gear, Chain, or Wire Lubricant” means any “Lubricant” designed or labeled exclusively for use on gears, chains, or wire ropes. “Gear, Chain or Wire Lubricant” does not include lubricant products labeled solely for use on chains of chain-driven vehicles.
6. “Multi-purpose Lubricant” means any “Lubricant” designed or labeled for general purpose lubrication, or a lubricant labeled for use in a wide variety of applications. Products that meet the definition for “Anti-seize Lubricant,” “Cutting or Tapping Oil,” “Dry Lubricant,” “Firearm Lubricant,” “Gear, Chain, or Wire Lubricant,” “Penetrant,” “Rust Preventative or Rust Control Lubricant,” “Silicone-based Multi-purpose Lubricant,” or other lubricant products labeled solely for a single purpose are not “Multi-purpose Lubricants.”
7. “Penetrant” means a “Lubricant” designed or labeled primarily to loosen metal parts that have bonded together due to rusting, oxidation, or other causes. Lubricants that claim to have penetrating qualities, but are not labeled primarily to loosen bonded parts are not “Penetrant” products.

8. “Rust Preventative or Rust Control Lubricant” means any “Lubricant” designed or labeled primarily for the prevention or control of rust. A Lubricant that meets the definition for “Firearm Lubricant” is not a “Rust Preventative or Rust Control Lubricant.”

9. “Silicone-based Multi-purpose Lubricant” means any “Lubricant” which is designed or labeled for general lubrication or for use in a wide variety of applications, in which lubricity is primarily provided through the use of silicone compounds including, but not limited to, polydimethylsiloxane. “Silicone-based Multi-purpose Lubricant” does not include silicone-based lubricant products labeled solely for a single purpose.

(83) “LVP-VOC” means a chemical “compound” or “mixture” that contains at least one carbon atom and meets one of the following:

(A) has a vapor pressure less than 0.1 mm Hg at 20 °C, as determined by ARB Method 310; or

(B) is a chemical “compound” with more than 12 carbon atoms, or a chemical “mixture” comprised solely of “compounds” with more than 12 carbon atoms, as verified by formulation data, and the vapor pressure and boiling point are unknown; or

(C) is a chemical “compound” with a boiling point greater than 216 °C, as determined by ARB Method 310; or

(D) is the weight percent of a chemical “mixture” that boils above 216 °C, as determined by ARB Method 310.

For the purposes of the definition of LVP-VOC, chemical “compound” means a molecule of definite chemical formula and isomeric structure, and chemical “mixture” means a substance comprised of two or more chemical “compounds.”

(84) “Manufacturer” means any person who imports, manufactures, assembles, produces, packages, repackages, or relabels a consumer product.

(85) “Medicated Astringent/Medicated Toner” means any product regulated as a drug by the Food and Drug Administration (FDA) which is applied to the skin for the purpose of cleaning or tightening pores. “Medicated Astringent/Medicated Toner” includes, but is not limited to, clarifiers and substrate-impregnated products. “Medicated Astringent/Medicated Toner” does not include hand, face, or body cleaner or soap products, “Personal Fragrance Products,” “Astringent/Toner,” cold cream, lotion, antiperspirants, or products that must be purchased with a doctor's prescription.

(86) “Metal Polish or Cleanser” means any product designed or labeled to improve the appearance and/or protect finished metal, metallic, or metallized surfaces by physical or chemical action. To “improve the appearance” means to remove, or reduce stains, impurities, or oxidation from surfaces or to make surfaces smooth and shiny. “Metal Polish or Cleanser” includes, but is not limited to, metal polishes used on brass, silver, chrome, copper, stainless steel and other ornamental metals. “Metal Polish or Cleanser” does not include “Automotive Wax, Polish, Sealant or Glaze,” “General Purpose Cleaner,” “Tire or Wheel Cleaner,” “Paint Remover or Stripper,” products designed and labeled exclusively for automotive and marine detailing, or products designed for use in degreasing tanks.

(87) “Motor Vehicle Wash” means a product designed or labeled to wash, wash and wax, wash and shine, or wash and/or clean the exterior surface of motor vehicles. “Motor Vehicle Wash” includes, but is not limited to, products for use in commercial, fleet, hand, and “drive through” car washes; commercial truck washing or large vehicle washing stations; vehicle dealers and repair shops as well as products intended for household consumer use. “Motor Vehicle Wash” does not include “Bug and Tar Remover,” “Glass Cleaner,” “Tire or Wheel Cleaner,” and products labeled for use exclusively on locomotives or aircraft.

(88) “Multi-purpose Solvent” means:

(A) for products manufactured before January 1, 2015: any liquid product designed or labeled to be used for dispersing, dissolving, or removing contaminants or other organic materials. “Multi-purpose Solvent” includes: 1. products that do not display specific use instructions on the product container or packaging; 2. products that do not specify an end-use function or application on the product container or packaging; 3. solvents used in institutional facilities, except for laboratory reagents used in analytical, educational, research, scientific or other laboratories; 4. “Paint clean-up” products; and 5. products labeled to prepare surfaces for painting. For the purposes of this definition only, “Paint clean-up” means any liquid product labeled for cleaning oil-based or water-based paint, lacquer, varnish, or related coatings from, but not limited to, painting equipment or tools, plastics, or metals. “Multi-purpose Solvent” does not include 1. solvents used in cold cleaners, vapor degreasers, conveyorized degreasers or film cleaning machines; 2. solvents labeled exclusively for the clean-up of application equipment used for polyaspartic and polyurea coatings; 3. products that are labeled exclusively to clean a specific contaminant, on a single substrate, in specific situations; or 4. except as provided in section 94509(p)(4)(A), any product making any representation that the product may be used as, or is suitable for use as a consumer product which meets another definition in section 94508(a); such products are not “Multi-purpose Solvents” and are subject to the “Most Restrictive Limit” provisions of section 94512(a).

(B) for products manufactured on or after January 1, 2015: any product designed or labeled to be used for dispersing, dissolving, or removing contaminants or other organic materials.

“Multi-purpose Solvent” includes:

1. products that do not display specific use instructions on the product container or packaging;
2. products that do not display an end-use function or application on the product container or packaging;
3. solvents used in institutional facilities;
4. products labeled as “Paint Clean-Up,” or products designed or labeled for cleaning oil-based or water-based paint, lacquer, varnish, or related coatings from painting equipment or tools, plastics, or metals;
5. products labeled to prepare surfaces for painting; and
6. products that display on the Principal Display Panel a specific chemical name. Examples of specific chemical names include mineral spirits, ketone, turpentine, toluene, xylene(s), acetone, naphtha, or alcohol.

“Multi-purpose Solvent” does not include:

1. solvents used in cold cleaners, vapor degreasers, conveyORIZED degreasers or film cleaning machines;
2. solvents labeled exclusively for the clean-up of application equipment used for polyaspartic and polyurea coatings;
3. products that are labeled exclusively to clean a specific contaminant, on a single substrate;
4. “Rubbing Alcohol;”
5. laboratory reagents used in analytical, educational, research, scientific or other laboratories; and
6. products that are used exclusively for the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings” that meet both of the following criteria:
 - a. the Responsible Party also manufactures for sale in California “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;” and
 - b. the label states the specific product or brand of the “Industrial Maintenance Coating,” “Zinc-Rich Primer,” or “High Temperature Coating” for which the product is used.

(89) “Nail Polish” means any clear or colored coating designed for application to the fingernails or toenails and including but not limited to, lacquers, enamels, acrylics, base coats and top coats.

(90) “Nail Polish Remover” means a product designed to remove nail polish and coatings from fingernails or toenails.

(91) “No Rinse Shampoo” means a product designed or labeled solely to be applied to hair that is dry to clean, absorb oil, or eliminate odor, and is subsequently removed from the hair by combing, brushing, or toweling the hair.

(92) “Nonaerosol” means any product which is not an “Aerosol Product.”

(93) “Noncarbon Containing Compound” means any compound which does not contain any carbon atoms.

(94) “Nonselective Terrestrial Herbicide” means a terrestrial herbicide product that is toxic to plants without regard to species.

(95) “Odor Remover/Eliminator” means a product that is designed or labeled to be applied exclusively to hard surfaces to inhibit the ability of soils to create malodors, or functions to entrap, encapsulate, neutralize, convert or eliminate malodor molecules. “Odor Remover/Eliminator” does not include products designed or labeled for use in cleaning soils from hard

surfaces, laundering, softening, de-wrinkling or cleaning fabrics, or dishwashing, or products that are defined as “Air Freshener,” “Bathroom and Tile Cleaner,” “Carpet/Upholstery Cleaner,” “Fabric Refresher,” “General Purpose Cleaner,” “Toilet/Urinal Care Product,” “Disinfectant,” or “Sanitizer.”

(96) “Oven or Grill Cleaner” means a product labeled exclusively to remove baked on greases and/or deposits from food preparation and/or food cooking surfaces. A product that is labeled as an “Oven or Grill Cleaner” that makes claims that it is suitable for degreasing other hard surfaces is a “General Purpose Degreaser.” A product that is labeled as an “Oven or Grill Cleaner” that makes claims that it is suitable for cleaning other hard surfaces is a “General Purpose Cleaner.”

(97) “Paint” means any pigmented liquid, liquefiable, or mastic composition designed for application to a substrate in a thin layer which is converted to an opaque solid film after application and is used for protection, decoration or identification, or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics.

(98) “Paint Remover or Stripper” means any product designed to strip or remove paints or other related coatings, by chemical action, from a substrate without markedly affecting the substrate. “Paint Remover or Stripper” does not include “Multi-purpose Solvent,” paint brush cleaners, products designed and labeled exclusively as “Graffiti Remover,” and hand cleaner products that claim to remove paints and other related coatings from skin.

(99) “Paint Thinner” means:

(A) for products manufactured before January 1, 2015: any liquid product used for reducing the viscosity of coating compositions or components, that prominently displays the term “Paint Thinner,” “Lacquer Thinner,” “Thinner,” or “Reducer” on the front panel of its packaging. “Paint Thinner” does not include any of the following products:

1. “Artist's Solvent/Thinner;”
2. products that are sold in containers with a capacity of 5 gallons or more and labeled exclusively for the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;”
3. products labeled and used exclusively as an ingredient in a specific coating or coating brand line, whereby the coating would not be complete or useable without the specific ingredient; and
4. products that meet both of the following criteria:
 - a. the Principal Display Panel of the product displays, in a font size as large as, or larger than, the font size of all other words on the Principal Display Panel, language that the product is used exclusively for the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings,” and

b. no representation is made anywhere on the product container or packaging, or any label or sticker attached thereto, that the product is suitable for use or may be used for any other purpose except the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings.”

(B) for products manufactured on or after January 1, 2015: any product that is designed or labeled to reduce the viscosity of coating compositions or components, or a product that prominently displays terms such as “Paint Thinner,” “Lacquer Thinner,” “Thinner,” or “Reducer” on the label. “Paint Thinner” includes aerosol products that provide a seamless transition between finishes, except for “Uniform Finish Coating” as defined in section 94521(a).

“Paint Thinner” does not include any of the following products:

1. “Artist's Solvent/Thinner;”
2. “Rubbing Alcohol;”
3. products that are sold in containers with a capacity of 5 gallons or more and labeled exclusively for the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings” that meet both of the following criteria:
 - a. the Responsible Party also manufactures for sale in California “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;” and
 - b. the label states the specific product or brand of the “Industrial Maintenance Coating,” “Zinc-Rich Primer,” or “High Temperature Coating” for which the thinning product is to be used.
4. products labeled and used exclusively as an ingredient in a specific coating or coating brand line, whereby the coating would not be complete or useable without the specific ingredient; and
5. products that meet all of the following criteria:
 - a. the Principal Display Panel of the product displays, in a font size as large as, or larger than, the font size of all other words on the Principal Display Panel, excluding the company name, brand name, and logo, language that the product is used exclusively for the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;”
 - b. no representation is made anywhere on the product container or packaging, or any label or sticker attached thereto, that the product is suitable for use or may be used for any other purpose except the thinning of “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;”
 - c. the Responsible Party also manufactures for sale in California “Industrial Maintenance Coatings,” “Zinc-Rich Primers,” or “High Temperature Coatings;” and

d. the label states the specific product or brand of the “Industrial Maintenance Coating,” “Zinc-Rich Primer,” or “High Temperature Coating” for which the thinning product is to be used.

(100) “Person” shall have the same meaning as defined in [Health and Safety Code Section 39047](#).

(101) “Personal Fragrance Product” means any product which is applied to the human body or clothing for the primary purpose of adding a scent or masking a malodor, including, but not limited to, cologne, perfume, aftershave, toilet water, lotion, powder, body mist, and body spray. “Personal Fragrance Product” does not include: (A) Deodorant, as defined in section 94501(d), (B) medicated products designed primarily to alleviate fungal or bacterial growth on feet or other areas of the body; (C) mouthwashes, breath fresheners and deodorizers; (D) lotions, moisturizers, powders or other skin care products designed or labeled to be used primarily to alleviate skin conditions such as dryness and irritations; (E) products designed exclusively to be applied to human genitalia areas, undergarments, and any paper products, napkins or other products that are affixed to undergarments, such as sanitary pads; (F) soaps, shampoos, and products primarily used to clean the human body; and (G) fragrance products designed to be used exclusively on nonhuman animals.

(102) “Pesticide” means and includes any substance or mixture of substances labeled, designed, or intended for use in preventing, destroying, repelling, or mitigating any pest, or any substance or mixture of substances labeled, designed, or intended for use as a defoliant, desiccant, or plant regulator, provided that the term “pesticide” will not include any substance, mixture of substances, or device which the United States Environmental Protection Agency does not consider to be a pesticide.

(103) “Pressurized Gas Duster” means a pressurized product labeled to remove dust from a surface solely by means of mass air or gas flow, including surfaces such as photographs, photographic film negatives, computer keyboards, and other types of surfaces that cannot be cleaned with solvents. “Pressurized Gas Duster” does not include “Dusting Aid,” “General Purpose Cleaner,” “Electrical Cleaner,” “Electronic Cleaner,” “Energized Electrical Cleaner,” or “Anti-Static Product.” Pressurized Gas Duster does not include products labeled exclusively to remove dust from equipment where dust removal is accomplished when: electric current exists; residual electrical potential from a component such as a capacitor exists; or an open flame exists, as long as the “Principal Display Panel” clearly displays the statement: “Energized Equipment use only.”

(104) “Principal Display Panel or Panels” means that part, or those parts of a label that are so designed as to most likely be displayed, presented, shown or examined under normal and customary conditions of display or purchase. Whenever a principal display panel appears more than once, all requirements pertaining to the “principal display panel” shall pertain to all such “principal display panels.”

(105) “Product Brand Name” means the name of the product exactly as it appears on the principal display panel of the product.

(106) “Product Category” means the applicable category which best describes the product as listed in this Section 94508.

(107) “Product Form,” for the purpose of complying with Section 94513 only, means the applicable form which most accurately describes the product's dispensing form as follows:

A = Aerosol Product

S	=	Solid
P	=	Pump Spray
L	=	Liquid
SS	=	Semisolid
O	=	Other

(108) “Propellant” means a liquefied or compressed gas that is used in whole or in part, such as a cosolvent, to expel a liquid or any other material from the same self-pressurized container or from a separate container.

(109) “Pump Spray” means a packaging system in which the product ingredients within the container are not under pressure and in which the product is expelled only while a pumping action is applied to a button, trigger or other actuator.

(110) “Responsible Party” means the company, firm or establishment which is listed on the product's label. If the label lists two companies, firms or establishments, the responsible party is the party which the product was “manufactured for” or “distributed by,” as noted on the label.

(111) “Restricted Materials” means pesticides established as restricted materials under [Title 3, California Code of Regulations, section 6400](#).

(112) “Retailer” means any person who sells, supplies, or offers consumer products for sale directly to consumers.

(113) “Retail Outlet” means any establishment at which consumer products are sold, supplied, or offered for sale directly to consumers.

(114) “Rubber/Vinyl Protectant” means any product labeled to protect, preserve or renew vinyl, or rubber on vehicles, tires, luggage, furniture, and/or household products such as vinyl covers, clothing, or accessories. “Rubber/Vinyl Protectant” does not include: products labeled to clean the wheel rim, such as aluminum or magnesium wheel cleaners; tire cleaners that do not leave an appearance-enhancing or protective substance on the tire; pigmented products designed or labeled to be used primarily for coloring; products used for construction, reconstruction, modification, structural maintenance or repair of rubber or vinyl substrates; or products, other than those labeled to be used on vehicle tires, qualifying as either “Clear Coating” or “Vinyl/Fabric/Leather/Plastic/Coating” as defined in section 94521(a).

(115) “Rubbing Alcohol” means any product containing isopropyl alcohol (also called isopropanol) or denatured ethanol and labeled for topical use, usually to decrease germs in minor cuts and scrapes, to relieve minor muscle aches, as a rubefacient, and for massage.

(116) “Sanitizer” means a product that is labeled as a “sanitizer,” or is labeled to reduce, but not necessarily eliminate, microorganisms in the air, on surfaces, or on inanimate objects, and whose label is registered as a “sanitizer” under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA; [7 U.S.C. section 136 et seq.](#)). Products that are labeled as both a “sanitizer” and a “disinfectant” are considered disinfectants. “Sanitizer” does not include (A) “Disinfectant,” (B) products labeled solely

for use on humans or animals, (C) products labeled solely for agricultural use, (D) products labeled solely for use in swimming pools, therapeutic tubs, or hot tubs, (E) products which are labeled to be used on heat sensitive critical or semi-critical medical devices or medical equipment surfaces, (F) products which are pre-moistened wipes or towelettes sold exclusively to medical, convalescent or veterinary establishments (G) products which are labeled to be applied to food-contact surfaces and are not required to be rinsed prior to contact with food, or (H) products which are labeled as “Bathroom and Tile Cleaner,” “Glass Cleaner,” “General Purpose Cleaner,” “Toilet/Urinal Care Product,” “Metal Polish or Cleanser,” “Carpet Cleaner,” or “Fabric Refresher” that may also make sanitizing or antimicrobial claims on the label.

(117) “Sealant or Caulking Compound” means any product with adhesive properties that is designed to fill, seal, waterproof, or weatherproof gaps or joints between two surfaces. “Sealant or Caulking Compound” does not include pipe thread sealants or pipe joint compounds; roof cements and roof sealants; insulating foams; removable caulking compounds; clear/paintable/water resistant caulking compounds; floor seam sealers; products designed exclusively for automotive uses; or sealers that are applied as continuous coatings. “Sealant or Caulking Compound” also does not include units of product, less packaging, which weigh more than one pound and consist of more than 16 fluid ounces. For the purposes of this definition only:

“Removable caulking compounds” means a compound which temporarily seals windows or doors for three to six month time intervals.

“Clear/paintable/water resistant caulking compounds” means a compound which contains no appreciable level of opaque fillers or pigments; transmits most or all visible light through the caulk when cured; is paintable; and is immediately resistant to precipitation upon application.

“Sealant or Caulking Compound” is divided into two subcategories:

(A) “Chemically Curing Sealant or Caulking Compound” means any “Sealant or Caulking Compound” which achieves its final composition and physical form through a chemical curing process, where product ingredients participate in a chemical reaction in the presence of a catalyst that causes a change in chemical structure and leads to the release of chemical byproducts. “Chemically Curing Sealant or Caulking Compound” includes, but is not limited to, products that utilize silicone, polyurethane, silyl-terminated polyether, or silyl-terminated polyurethane reactive chemistries. “Chemically Curing Sealant or Caulking Compound” does not include products which are not solely dependent on a chemically curing process to achieve the cured state.

(B) “Nonchemically Curing Sealant or Caulking Compound” means any “Sealant or Caulking Compound” not defined under “Chemically Curing Sealant or Caulking Compound.”

(118) “Semisolid” means a product that, at room temperature, will not pour, but will spread or deform easily, including but not limited to gels, pastes, and greases.

(119) “Shaving Cream” means an aerosol product which dispenses a foam lather intended to be used with a blade or cartridge razor, or other wet-shaving system, in the removal of facial or other bodily hair. “Shaving Cream” does not include “Shaving Gel.”

(120) “Shaving Gel” means an aerosol product which dispenses a post-foaming semi-solid designed to be used with a blade, cartridge razor, or other shaving system in the removal of facial or other bodily hair. “Shaving Gel” does not include “Shaving Cream.”

(121) “Solid” means a substance or mixture of substances which, either whole or subdivided (such as the particles comprising a powder), is not capable of visually detectable flow as determined under ASTM D-4359-90 (May 25, 1990) Standard Test Method for Determining Whether a Material Is a Liquid or a Solid, which is incorporated by reference herein.

(122) “Single Purpose Cleaner” means a cleaning product that is designed and labeled exclusively to clean one specific object or its parts that is not subject to any other regulated category, except that a cleaning product that claims to clean a single appliance, counter, wall, cabinet or floor is a “General Purpose Cleaner.”

(123) “Single Purpose Degreaser” means a product that is designed and labeled exclusively to degrease one specific object or its parts that is not subject to any other regulated category. “Single Purpose Degreaser” does not include “Adhesive Remover,” “Electrical Cleaner,” “Electronic Cleaner,” “Energized Electrical Cleaner,” “Engine Degreaser,” “General Purpose Cleaner,” “Metal Polish or Cleanser,” or “Oven or Grill Cleaner.” “Single Purpose Degreaser” also does not include products used exclusively in “solvent cleaning tanks or related equipment,” or products that are (A) exclusively sold directly or through distributors to establishments which manufacture or construct goods or commodities; and (B) labeled exclusively for “use in the manufacturing process only.” “Solvent cleaning tanks or related equipment” includes, but is not limited to, cold cleaners, vapor degreasers, conveyorized degreasers, film cleaning machines, or products designed to clean miscellaneous metallic parts by immersion in a container.

(124) “Spot Remover” means any product labeled to clean localized areas, or remove localized spots or stains on cloth or fabric such as drapes, carpets, upholstery, or clothing, that may or may not require subsequent laundering to achieve stain removal. “Spot Remover” includes spotting agents used by commercial dry cleaning and “laundering” operations. “Spot Remover” does not include “Laundry Prewash” or aerosol products labeled solely for gum removal.

(125) “Spray Buff Product” means a product designed to restore a worn floor finish in conjunction with a floor buffing machine and special pad.

(126) “Table B Compound” means any carbon-containing compound listed as an exception to the definition of VOC in Section 94508.

(127) “Temporary Hair Color” means any product that applies color, glitter, or UV-active pigments to hair, wigs, or fur and is removable when washed. “Temporary Hair Color” includes hair color mousses and products labeled to add texture or thickness to cover thinning/balding areas. “Temporary Hair Color” does not include “Hair Finishing Spray,” “Hair Styling Product,” or “Hair Mousse.”

(128) “Terrestrial” means to live on or grow from land.

(129) “Thermal Protectant” means a product that is designed or labeled solely to be applied to the hair to protect it from heat damage during the use of heated tools such as blow drier, flat iron, and/or curling iron.

(130) “Tire or Wheel Cleaner” means a product designed or labeled exclusively to clean either tires, wheels, or both. “Tire or Wheel Cleaner” includes, but is not limited to, products for use in commercial, fleet, hand, and “drive-through” car washes;

commercial truck washing or large vehicle washing stations; vehicle dealers and repair shops, as well as household consumer products. "Tire or Wheel Cleaner" does not include products labeled for use exclusively on locomotives or aircraft.

(131) "Tire Sealant and Inflator" means any pressurized product that is designed to temporarily inflate and seal a leaking tire.

(132) "Toilet/Urinal Care Product" means any product designed or labeled to clean and/or to deodorize toilet bowls, toilet tanks, or urinals. Toilet bowls, toilet tanks, or urinals includes, but is not limited to, toilets or urinals connected to permanent plumbing in buildings and other structures, portable toilets or urinals placed at temporary or remote locations, and toilet or urinals in vehicles such as buses, recreational motor homes, boats, ships, and aircraft. "Toilet/Urinal Care Product" does not include "Bathroom and Tile Cleaner" or "General Purpose Cleaner."

(133) "Type A Propellant" means a compressed gas such as CO₂, N₂, N₂O, or compressed air which is used as a propellant, and is either incorporated with the product or contained in a separate chamber within the product's packaging.

(134) "Type B Propellant" means any halocarbon which is used as a propellant including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and hydrofluorocarbons (HFCs).

(135) "Type C Propellant" means any propellant which is not a Type A or Type B propellant, including propane, isobutane, n-butane, and dimethyl ether (also known as dimethyl oxide).

(136) "Undercoating" means:

(A) for products manufactured before January 1, 2017: any aerosol product designed to impart a protective, nonpaint layer to the undercarriage, trunk interior, and/or firewall of motor vehicles to prevent the formation of rust or to deaden sound. "Undercoating" includes, but is not limited to, rubberized, mastic, or asphaltic products.

(B) for products manufactured on or after January 1, 2017: any aerosol product designed or labeled exclusively to impart a protective, nonpaint layer to the undercarriage, trunk interior, and/or firewall or other parts of motor vehicles to prevent the formation of rust or to deaden sound. "Undercoating" includes, but is not limited to, rubberized, mastic, or asphaltic products. An aerosol product that may be used as an "Undercoating" but makes claims it may be used to provide a flexible or protective coating to non-vehicular surfaces is a "Flexible Coating" as defined in section 94521(a).

(137) "Usage Directions" means the text or graphics on the product's principal display panel, label, or accompanying literature which describes to the end user how and in what quantity the product is to be used.

(138) "Volatile Organic Compound (VOC)" means any compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding the following:

(A) methane,

methylene chloride (dichloromethane),

1,1,1-trichloroethane (methyl chloroform),

trichlorofluoromethane (CFC-11),

dichlorodifluoromethane (CFC-12),

1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113),

1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114),

chloropentafluoroethane (CFC-115),

chlorodifluoromethane (HCFC-22),

1,1,1-trifluoro-2,2-dichloroethane (HCFC-123),

1,1-dichloro-1-fluoroethane (HCFC-141b),

1-chloro-1,1-difluoroethane (HCFC-142b),

2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124),

trifluoromethane (HFC-23),

1,1,2,2-tetrafluoroethane (HFC-134),

1,1,1,2-tetrafluoroethane (HFC-134a),

pentafluoroethane (HFC-125),

1,1,1-trifluoroethane (HFC-143a),

1,1-difluoroethane (HFC-152a),

ethoxy-nonafluorobutane (HFE 7200),

trans-1,3,3,3-tetrafluoropropene (HFO-1234ze),

cyclic, branched, or linear completely methylated siloxanes,

the following classes of perfluorocarbons:

1. cyclic, branched, or linear, completely fluorinated alkanes;
2. cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

3. cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
4. sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds to carbon and fluorine, and

(B) the following low-reactive organic compounds which have been exempted by the U.S. EPA:

acetone,

ethane,

methyl acetate

parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene),

perchlorethylene (tetrachlorethylene).

(139) “VOC Content” means the total weight of VOC in a product expressed as a percentage of the product weight (exclusive of the container or packaging), as determined pursuant to sections 94515(a) and (b).

(140) “Waterproofer” means a nonaerosol product designed or labeled exclusively to repel water from fabric or leather substrates. “Waterproofer” does not include “Fabric Protectant.” Any aerosol product that meets the definition of an “Aerosol Coating Product” as defined in section 94521(a) and is designed or labeled exclusively to repel water from fabric or leather substrates is a “Vinyl/Fabric/Leather/Plastic Coating” as defined in section 94521(a).

(141) “Wax” means a material or synthetic thermoplastic substance generally of high molecular weight hydrocarbons or high molecular weight esters of fatty acids or alcohols, except glycerol and high polymers (plastics). “Wax” includes, but is not limited to, substances derived from the secretions of plants and animals such as carnauba wax and beeswax, substances of a mineral origin such as ozocerite and paraffin, and synthetic polymers such as polyethylene.

(142) “Windshield Water Repellent” means a product designed or labeled exclusively to repel water from motor vehicle exterior automotive glass surfaces. “Windshield Water Repellent” does not include “Automotive Windshield Washer Fluid.”

(143) “Wood Cleaner” means a product labeled to clean wooden materials including but not limited to decking, fences, flooring, logs, cabinetry, and furniture. “Wood Cleaner” does not include “Dusting Aid,” General Purpose Cleaner,” “Furniture Maintenance Product,” “Floor Wax Stripper,” “Floor Polish or Wax,” or products designed and labeled exclusively to preserve or color wood.

(144) “Zinc-Rich Primer” means a coating that meets all the following specifications: (A) coating contains at least 65 percent metallic zinc powder or zinc dust by weight of total solids; and (B) coating is formulated for application to metal substrates to provide a firm bond between the substrate and subsequent applications of coatings; and (C) coating is intended for professional use only and labeled “For Professional Use Only;” “For Industrial Use Only;” “Not for residential use;” or “Not intended for residential use.”

Note: Authority cited: [Sections 38501, 38510, 38560, 38560.5, 38562, 38580, 39600, 39601 and 41712, Health and Safety Code.](#)
 Reference: [Sections 38501, 38510, 38560, 38560.5, 38562, 38580, 39002, 39600, 40000 and 41712, Health and Safety Code.](#)

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsection (a)(2), repealer and new subsections (a)(1)-(71), and new subsections (a)(72)-(93) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Repealer of subsection (a)(90) and new subsections (a)(90)-(a)(90)(B) filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
4. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
5. New subsections (a)(2), (a)(9), (a)(12), (a)(14)-(17), (a)(20), (a)(23), (a)(36), (a)(39), (a)(42)(A)-(C), (a)(44), (a)(49), (a)(57), (a)(58), (a)(62), (a)(64), (a)(65), (a)(77), (a)(80)-(85), (a)(90), (a)(93), (a)(94), (a)(108)-(110), (a)(112), (a)(115), (a)(118), (a)(122), repealer of former subsection (a)(67), subsection renumbering, and amendment of newly designated subsections (a)(26), (a)(42) and (a)(126) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
6. Amendment of subsection (a)(124)(B) filed 5-25-99; operative 6-24-99 (Register 99, No. 22).
7. Amendment of subsections (a)(78)-(a)(78)(B) and new subsections (a)(78)(C)-(D) filed 11-16-99; operative 12-16-99 (Register 99, No. 47).
8. Amendment implementing Mid-Term Measures II filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).
9. Amendment of subsection (a)(1), new subsection (a)(3), subsection relettering, amendment of newly designated subsections (a)(30) and (a)(53), new subsections (a)(84), (a)(118)-(a)(118)(G) and (a)(134) and further subsection relettering filed 4-18-2001; operative 5-18-2001 (Register 2001, No. 16).
10. Amendment filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
11. Amendment filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
12. Amendment of section and Note filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).
13. Amendment of subsections (a)(2)(A), new subsections (a)(13)-(14), (a)(85), (a)(87)-(a)(87)(E) and (a)(163), subsection renumbering, amendment of newly designated subsections ((a)(15), (a)(21)(A), (a)(22)(A), (a)(28), (a)(41), (a)(61)(C), (a)(67), (a)(81)(B), (a)(96), (a)(106)(B) and (a)(115), new subsections (a)(115)(A)-(a)(115)(D)(2.) and amendment of newly designated subsections (a)(127), (a)(140) and (a)(141)(B) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).
14. Editorial correction of subsection (a)(41) (Register 2010, No. 42).
15. Change without regulatory effect amending subsection (a)(106)(B) and redesignating former subsections (a)(115)(D)(1.)-(2.) and (a)(141)(F)(1.)-(2.) as subsections (a)(115)(D)1.-2. and (a)(141)(F)1.-2. filed 12-23-2010 pursuant to [section 100, title 1, California Code of Regulations](#) (Register 2010, No. 52).
16. Amendment filed 11-10-2011; operative 12-10-2011 (Register 2011, No. 45).

17. Amendment of subsection (a)(20), repealer and new subsections (a)(20)(A)-(B), new subsections (a)(20)(C)-(D)2., repealer of subsection (a)(21) and subsection renumbering, including nonsubstantive hierarchical changes within newly designated subsections (a)(96)(C)1.-9., filed 4-25-2013; operative 7-1-2013 (Register 2013, No. 17).

18. Editorial correction of subsection (a)(20) removing inadvertently retained text (Register 2013, No. 31).

19. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

This database is current through 6/19/20 Register 2020, No. 25

17 CCR § 94508, 17 CA ADC § 94508

End of Document

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Barclays Official California Code of Regulations Currentness
 Title 17. Public Health
 Division 3. Air Resources
 Chapter 1. Air Resources Board
 Subchapter 8.5. Consumer Products
 Article 2. Consumer Products

17 CCR § 94509

§ 94509. Standards for Consumer Products.

(a) Except as provided in sections 94510 (Exemptions), 94511 (Innovative Products), 94514 (Variances), and 94540 through 94555 (Alternative Control Plan), title 17, California Code of Regulations, no person shall sell, supply, offer for sale, or manufacture for sale in California any consumer product which, at the time of sale or manufacture, contains volatile organic compounds in excess of the limits specified in the following Table of Standards after the specified effective dates.

Table of Standards

Percent Volatile Organic Compounds by Weight

<i>Product Category</i>	<i>Effective Date</i> ¹	<i>VOC</i> Standard ²
Adhesive*:		
.....		
[*See section 94510(i) for an exemption that applies to adhesives.]		
Aerosol**	1/1/95	75
.....		
Mist Spray Adhesive**	1/1/2002	65
	1/1/2017	30
.....		
Web Spray Adhesive**	1/1/2002	55
	1/1/2017	40
.....		
Special Purpose Spray Adhesive:**		

Automobile Headliner Adhesive	1/1/2002	65
Automotive Engine Compartment Adhesive	1/1/2002	70
Flexible Vinyl Adhesive	1/1/2002	70
Laminate Repair/Edgebanding Adhesive	1/1/2002	60
Mounting Adhesive	1/1/2002	70
Polyolefin Adhesive	1/1/2002	60
Polystyrene Foam Adhesive	1/1/2002	65
Screen Printing Adhesive	1/1/2017	55

[**See sections 94509(i), 94509(m)(1),
94509(n), 94512(d), and 94513(d) for
additional requirements that apply to aerosol
adhesive.]

Construction, Panel, or Floor Covering Adhesive#	1/1/95	40
	12/31/2002	15
	12/31/2008	7

[#See section 94509(k) for the effective date of the
VOC limit for

certain types of Construction, Panel, or Floor
Covering Adhesive,

and subsection 94509(m)(1) for additional
requirements that apply to

Construction, Panel, or Floor Covering Adhesive.]

Contact##	1/1/95	80
Contact Adhesive - General Purpose	12/31/2006	55
Contact Adhesive - Special Purpose	12/31/2006	80

[##See subsection 94509(m)(1) and section 94512(d)
for

additional requirements that apply to Contact
Adhesive.]

General Purpose	1/1/95	10

Adhesive Remover*:

Floor or Wall Covering Adhesive Remover	12/31/2006	5

Gasket or Thread Locking Adhesive Remover	12/31/2006	50

General Purpose Adhesive Remover	12/31/2006	20

Specialty Adhesive Remover	12/31/2006	70

[*See subsection 94509(m)(1) and section 94512(d)
for

additional requirements that apply to Adhesive
Remover.]

Aerosol Cooking Spray	1/1/95	18

Air Freshener*:

Double Phase Aerosol**	1/1/93	30

	12/31/2004	25

	12/31/2012	20

Single Phase Aerosol	1/1/93	70

	1/1/96	30

Dual Purpose Air Freshener/Disinfectant aerosol	1/1/94	60
liquid/pump spray	1/1/93	18
solid/semisolid#	1/1/93	3
[*See section 94510(f) for an exemption that applies to Air Freshener.] [**See section 94509(n) for additional requirements that apply to Double Phase Aerosol Air Freshener.] [#See subsections 94509(m)(2) and 94510(g)(2) for additional provisions that apply to Air Freshener (solid).]		
Anti-static Product:		
aerosol	12/31/2008	80
nonaerosol	12/31/2006	11
Astringent/Toner	12/31/2010	35
Automotive Rubbing or Polishing Compound		
all forms	1/1/2005	17
Automotive Wax/Polish/Sealant/Glaze:		
all other forms	1/1/2005	15
hard paste wax	1/1/2005	45

instant detailer	1/1/2001	3
.....		
Automotive Windshield Washer Fluid*:		
Type "A" areas	1/1/93	35
	12/31/2008	25
.....		
Nontype "A" areas	1/1/93	10
	12/31/2002	1
.....		
*See section 94508(a)(20), section 94509(b)(3), and		
section 94509(l) for provisions that apply to		
Automotive		
Windshield Washer Fluid.		
.....		
Bathroom and Tile Cleaner*:		
aerosol	1/1/94	7
.....		
all other forms	1/1/94	5
.....		
nonaerosol	12/31/2008	1
.....		
[*See subsection 94509(m)(1) for additional		
requirements that apply to		
Bathroom and Tile Cleaner.]		
.....		
Brake Cleaner*	1/1/97	50
	12/31/2002	45
	12/31/2008	20
	12/31/2010	10
.....		

[*See subsection 94509(m)(1) for additional requirements that

apply to Brake Cleaner]

Bug and Tar Remover	1/1/2002	40

Carburetor or Fuel-injection Air Intake Cleaner**	1/1/95	75
	12/31/2002	45
	12/31/2008	20
	12/31/2010	10

[**See section 94509(k) for the effective date of the VOC limit and

see subsection 94509(m)(1) for additional requirements that apply to

Carburetor or Fuel-injection Air Intake Cleaner.]

Carpet/Upholstery Cleaner*:

aerosol	1/1/2001	7
	12/31/2010	5

nonaerosol (dilutable)	1/1/2001	0.1

nonaerosol (ready-to-use)	1/1/2001	3
	12/31/2010	1

[*See subsection 94509(m)(1) for additional requirements that apply to

Carpet/Upholstery Cleaner]

Charcoal Lighter Material	See Section

94509(h)

.....		
Disinfectant:		
aerosol	12/31/2008	70
.....		
nonaerosol	12/31/2008	1
.....		
Dusting Aid:		
aerosol	1/1/95	35
	1/1/97	25
	12/31/2010	17
.....		
nonaerosol	1/1/95	7
	12/31/2010	3
.....		
Electrical Cleaner*	12/31/2006	45
.....		
[*See subsections 94509(m)(1) and section 94512(d) for additional requirements that apply to Electrical Cleaner.]		
.....		
Electronic Cleaner*	12/31/2007	75
.....		
[*See subsections 94509(m)(1) and section 94512(d) for additional requirements that apply to Electronic Cleaner.]		
.....		
Engine Degreaser*:	1/1/93	75
	1/1/96	50

aerosol	12/31/2004	35
	12/31/2010	10
nonaerosol	12/31/2004	5
[*See subsection 94509(m)(1) for additional requirements that apply to Engine Degreaser]		
Fabric-Protectant*	1/1/95	75
aerosol	1/1/97	60
nonaerosol	1/1/95	75
	1/1/97	60
	12/31/2010	1
[*See subsection 94509(m)(1) for additional requirements that apply to Fabric Protectant]		
Fabric-Refreshers:		
aerosol	12/31/2006	15
nonaerosol	12/31/2006	6
Fabric Softener - Single Use Dryer Product	See Section 94509(o)	
Floor Maintenance Product	12/31/2010	1

.....		
Floor Polish or Wax:		
Resilient Flooring Material	1/1/94	7
	12/31/2010	1
.....		
Nonresilient Flooring Material	1/1/94	10
	12/31/2010	1
.....		
Wood Floor Wax	1/1/94	90
	12/31/2010	70
.....		
Floor Wax Stripper:	See Section	
nonaerosol	94509(j)	
.....		
Footwear or Leather Care Product*:		
aerosol	12/31/2006	75
.....		
solid	12/31/2006	55
.....		
all other forms	12/31/2006	15
.....		
[*See subsection 94509(m)(1) for additional requirements		
that apply to Footwear or Leather Care Product.]		
.....		
Furniture Maintenance Product*:		
aerosol	1/1/94	25
	12/31/2004	17
	12/31/2013	12

all other forms (except solid/paste forms)	1/1/94	7
nonaerosol (except solid/paste forms)	12/31/2008	3
[*See section 94509(n) for additional requirements that apply to Furniture Maintenance Product.]		
General Purpose Cleaner*: aerosol and nonaerosol	1/1/94	10
aerosol	12/31/2008	8
nonaerosol	12/31/2004	4
	12/31/2012	0.5
[*See subsections 94509(m)(1) and (m)(3) for additional requirements that apply to General Purpose Cleaner.]		
General Purpose Degreaser*: aerosol	1/1/2002	50
	12/31/2008	20
	12/31/2010	10
nonaerosol	12/31/2004	4
	12/31/2012	0.5
[*See subsections 94509(m)(1) and (m)(3) for additional requirements		

that apply to General Purpose Degreaser.]

.....

Glass Cleaner*:

aerosol	1/1/93	12
	12/31/2012	10

.....

nonaerosol	1/1/93	8
	1/1/96	6
	12/31/2004	4
	12/31/2012	3

.....

[*See subsection 94509(m)(3) for additional requirements

that apply to nonaerosol Glass Cleaner]

.....

Graffiti Remover*:

aerosol	12/31/2006	50

.....

nonaerosol	12/31/2006	30

.....

[*See subsection 94509(m)(1) for additional requirements

that apply to Graffiti Remover.]

.....

Hair Mousse	1/1/94	16
	12/31/2002	6

.....

Hair Shine	1/1/2005	55

.....

Hair Finishing Spray	1/1/93	80

	6/1/99	55
.....		
Hair Styling Product:		
aerosol and pump spray	12/31/2006	6
.....		
all other forms	12/31/2006	2
.....		
Heavy-duty Hand Cleaner or Soap*		
all forms	1/1/2005	8
nonaerosol	12/31/2013	1
.....		
[*See subsection 94509(m)(3) for additional requirements		
that apply to nonaerosol Heavy-duty Hand Cleaner or Soap]		
.....		
Insect Repellant:		
aerosol	1/1/94	65
.....		
Insecticide*:		
Crawling Bug Insecticide (all forms):	1/1/95	40
	1/1/98	20
.....		
aerosol	12/31/2004	15
.....		
Flea or Tick Insecticide	1/1/95	25
.....		
Flying Bug Insecticide (all forms)**:	1/1/95	35
.....		
aerosol	12/31/2003	25

	12/31/2013	20
Fogger	1/1/95	45
Lawn or Garden Insecticide (all forms)	1/1/95	20
nonaerosol	12/31/2003	3
Wasp or Hornet Insecticide**	1/1/2005	40
	12/31/2013	10
[*See sections 94510(g)(1) and 94510(k) for exemptions that apply to certain insecticides.]		
[**See subsection 94509(n) for additional requirements that apply to Flying Bug and Wasp or Hornet Insecticide]		
Laundry Prewash:		
aerosol/solid	1/1/94	22
all other forms	1/1/94	5
Laundry Starch/Sizing/Fabric Finish Product:	1/1/95	5
	12/31/2008	4.5
Lubricant*		
[*See subsection 94509(m)(1), for additional requirements		

that apply to Lubricant products.]

Anti-Seize Lubricant**

aerosol	12/31/2013	40

nonaerosol	12/31/2013	3

Cutting or Tapping Oil**

aerosol	12/31/2013	25

nonaerosol	12/31/2013	3

Gear, Chain, or Wire Lubricant**

aerosol	12/31/2013	25

nonaerosol	12/31/2013	3

Multi-purpose Lubricant (excluding solid or

semisolid products)#	1/1/2003	50
	12/31/2013	25
	7/1/2019	10##

Penetrant#†	1/1/2003	50

	12/31/2013	25

Rust Preventative or Rust Control Lubricant**

aerosol	12/31/2013	25

nonaerosol	12/31/2013	3

Silicone-based Multi-purpose Lubricant (excluding solid or semisolid products)	1/1/2005	60
[**See subsection 94509(n) for additional requirements that apply to Anti-Seize Lubricant; Cutting or Tapping Oil; Gear, Chain, or Wire Lubricant; or Rust Preventative or Rust Control Lubricant products.] [#See subsection 94513(f) for additional requirements that apply to Multi-purpose Lubricant and Penetrant.] [†See subsection 94509(m)(7) for an exclusion that applies to certain Penetrant products.]		
Metal Polish or Cleanser*:	1/1/2005	30
aerosol	12/31/2012	15
nonaerosol	12/31/2012	3
[*See subsection 94509(m)(1) and subsection 94509(n) for additional requirements that apply to Metal Polish or Cleanser.]		
Motor Vehicle Wash		
nonaerosol	12/31/2010	0.2
Sealant or Caulking Compound*		
all forms	12/31/2002	4

.....		
Chemically Curing		
nonaerosol	12/31/2012	3
.....		
Nonchemically Curing		
nonaerosol	12/31/2010	1.5
.....		
[*See subsection 94509(m)(1) and section 94512(d) for additional requirements that apply to Sealant or Caulking Compound.]		
.....		
Shaving Cream	1/1/94	5
.....		
Shaving Gel	12/31/2006	7
	12/31/2009	4
.....		
Spot Remover*:		
aerosol	1/1/2001	25
	12/31/2012	15
.....		
nonaerosol	1/1/2001	8
	12/31/2012	3
.....		
[*See subsections 94509(m)(1) and 94509(n) for additional requirements that apply to Spot Remover.]		
.....		
Multi-purpose Solvent*		
aerosol		

-standard for all areas of the State	1/1/2016	10
nonaerosol		
-standards for the South Coast Air Quality Management District	See section 94509(p)(4)	
-standards for all other areas of the State	12/31/2010	30
	12/31/2013	3

[*See sections 94509(b)(1), (m)(1), (n), and (p); 94512(a)(1), (a)(4) and (e);

94513(g); and 94515(j) for additional requirements that apply to

Multi-purpose Solvent.]

Nail Polish Remover	1/1/94	85
	1/1/96	75
	12/31/2004	0
	12/31/2007	1

Nonselective Terrestrial Herbicide:

nonaerosol	1/1/2002	3

Odor Remover/Eliminator

aerosol	12/31/2010	25

nonaerosol	12/31/2010	6

Oven or Grill Cleaner*:

aerosol/pump spray	1/1/93	8

aerosol	1/1/93	8

liquid	1/1/93	5
nonaerosol	12/31/2008	1
	12/10/2011	4
[*See subsection 94509(q) for the effective date of the VOC limit and subsections 94509(m)(1) and (m)(3) for additional requirements that apply to Oven or Grill Cleaner.]		
Paint Remover or Stripper	1/1/2005	50
Paint Thinner*		
aerosol	1/1/2016	10
-standard for all areas of the State		
nonaerosol		
-standards for the South Coast Air Quality Management District	See section 94509(p)(4)	
-standards for all other areas of the State	12/31/2010	30
	12/31/2013	3
[*See sections 94509(b)(1), (m)(1), (n), and (p); 94512(a)(1), (a)(4) and (e); 94513(g); and 94515(j) for additional requirements that apply to Paint Thinner. See section 94510(m) for an exemption that applies to Paint Thinner.]		
Personal Fragrance Product*:		
products with 20% or less fragrance	1/1/95	80
	1/1/99	75

products with more than 20% fragrance	1/1/95	70
	1/1/99	65
[*See sections 94510(h), 94510(j), and 94510(l) for exemptions and requirements that apply to Personal Fragrance Product.]		
Pressurized Gas Duster*	12/31/2010	1
[*See subsections 94509(m)(1), 94509(n) and 94510(c) for additional provisions that apply to Pressurized Gas Duster]		
Rubber/Vinyl Protectant:		
aerosol	1/1/2005	10
nonaerosol	1/1/2003	3
Sanitizer:		
aerosol	12/31/2008	70
nonaerosol	12/31/2008	1
Temporary Hair Color:		
aerosol	12/31/2010	55
Tire or Wheel Cleaner		
aerosol	12/31/2010	8

nonaerosol	12/31/2010	2
Tire Sealant and Inflator	12/31/2002	20
Toilet/Urinal Care Product:*		
aerosol	12/31/2006	10
nonaerosol	12/31/2006	3
[See subsection 94509(m)(2) for additional requirements that apply to Toilet/Urinal Care Product]		
Undercoating:		
aerosol	1/1/2002	40
Windshield Water Repellent	12/31/2010	75
Wood Cleaner:		
aerosol	12/31/2006	17
nonaerosol	12/31/2006	4

¹ See section 94509(d) for the effective date of the VOC standards for products registered under FIFRA, and section 94509(c) and (d) for the “sell-through” allowed for products manufactured prior to the effective date of standards.

² See section 94510(c) for an exemption that applies to fragrances in consumer products, and section 94510(d) for an exemption that applies to LVP-VOCs.

(b) Products that are diluted prior to use.

(1) Except for “Multi-purpose Solvent” and “Paint Thinner” products manufactured after January 1, 2015, and “Automotive Windshield Washer Fluids (Dilutable),” for consumer products for which the label, packaging, or accompanying literature specifically states that the product should be diluted with water or non-VOC solvent prior to use, the limits specified in subsection (a) shall apply to the product only after the minimum recommended dilution has taken place. For purposes of this subsection (b), “minimum recommended dilution” shall not include recommendations for incidental use of a concentrated product to deal with limited special application such as hard-to-remove soils or stains.

(2) For consumer products for which the label, packaging, or accompanying literature states that the product should be diluted with any VOC solvent prior to use, the limits specified in subsection (a) shall apply to the product only after the maximum recommended dilution has taken place.

(3) For “Automotive Windshield Washer Fluid (Dilutable)” for which the front panel of the product label specifically states that the product should be diluted (e.g. identified as a “concentrate”) prior to use:

(A) the VOC limits specified in section 94509(a) shall apply to the product only after the minimum recommended dilution has taken place;

(B) for the purpose of complying with the VOC limits specified in section 94509(a), different dilution instructions for Type “A” areas and Nontype “A” areas of California may be specified on the product label if the dilution instructions meet the following criteria:

1. The instructions are readily visible, and
2. The instructions can be easily understood by the consumer, and
3. The instructions clearly specify the recommended dilution that applies in Type “A” areas and Nontype “A” areas of California, and

If the dilution instructions specified on the product label meet these criteria, the VOC limits specified in section 94509(a) shall apply to the product only after the minimum recommended dilution has taken place for the area in which the product is sold, supplied, or offered for sale.

(C) The dilution instructions on the product label may indicate that the consumer follow the dilution instructions for Type “A” areas if traveling during times when freezing temperatures are expected.

(4) For products sold in pump spray containers, the VOC limits specified in section 94509(a) shall apply to the product prior to any minimum recommended dilution.

(c) Sell-through of products.

(1) Sell-through period. Notwithstanding the provisions of Sections 94509(a), 94509(j), or 94509(o), a consumer product manufactured prior to each of the effective dates specified for that product in the Table of Standards may be sold, supplied, or offered for sale for up to three years after each of the specified effective dates. This subsection (c) also does not apply to:

(A) any consumer product which does not display on the product container or package the date on which the product was manufactured, or a code indicating such date, or

(B) any consumer product on which the manufacturer has used a code indicating the date of manufacture that is different than the code specified in section 94512(b)(2), but an explanation of the code has not been filed with the ARB Executive Officer by the deadlines specified in section 94512(c)(1) or section 94512(c)(2), or

(C) Solid “Air Fresheners” and “Toilet/Urinal Care Product” that contain para-dichlorobenzene; these products are subject to the one-year sell-through period specified in section 94509(m)(2).

(D) Products contained in multi-unit packages, as specified below:

1. Subsection (c)(1) does not apply to any individual consumer products unit contained within a multi-unit package that is produced or assembled after January 1, 2006, where the multi-unit package does not display the date(s) or date-code(s) of the individual product units, or display the date of assembly, such that the displayed information is not readily observable without irreversibly disassembling any portion of the container or packaging.

2. For the purposes of this section, “date of assembly” means the date that the individual product units are assembled into the finished multi-unit package.

3. For multi-unit packages that display the “date of assembly” instead of the date(s) or date-code(s) of the individual product units, the “date of assembly” shall be the “date of manufacture “ for all of the product units contained within the multi-unit package. In other words, all of the product units shall be deemed to have been manufactured on the date these units are assembled into the multi-unit package, even if the individual product units show different date(s) or date-code(s).

(2) Notification for products sold during the sell-through period. Any person who sells or supplies a consumer product subject to the Table of Standards in section 94509 must notify the purchaser of the product in writing of the date on which the sell-through period for that product will end, provided, however, that this notification must be given only if all of the following conditions are met:

(A) the product is being sold or supplied to a distributor or retailer;

(B) the sell-through period for the product will expire 6 months or less from the date the product is sold or supplied;

(C) the product does not comply with the lowest VOC standard that applies on the date the sell-through period ends; and

(D) the product is subject to a VOC standard with an effective date on or after December 31, 2004.

(d) Products registered under FIFRA. For those consumer products that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA; [7 U.S.C. Section 136-136y](#)), the effective date of the VOC standards specified in subsection (a) is one year after the date specified in the Table of Standards. For those consumer products that are registered under FIFRA, the three year period provided in subsection (c) shall also begin one year after the date specified in the Table of Standards.

(e) Products containing ozone-depleting compounds. For any consumer product for which VOC standards are specified under subsection (a), no person shall sell, supply, offer for sale, or manufacture for sale in California any consumer product which contains any of the following ozone-depleting compounds:

CFC-11 (trichlorofluoromethane),

CFC-12 (dichlorodifluoromethane),

CFC-113 (1,1,1-trichloro-2,2,2-trifluoroethane),

CFC-114 (1-chloro-1,1-difluoro-2-chloro-2,2-difluoroethane),

CFC-115 (chloropentafluoroethane), halon 1211 (bromochlorodifluoromethane), halon 1301 (bromotrifluoromethane), halon 2402 (dibromotetrafluoroethane),

HCFC-22 (chlorodifluoromethane),

HCFC-123 (2,2-dichloro-1,1,1-trifluoroethane),

HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane),

HCFC-141b (1,1-dichloro-1-fluoroethane),

HCFC-142b (1-chloro-1,1-difluoroethane), 1,1,1-trichloroethane, and carbon tetrachloride.

(f) The requirements of section 94509(e) shall not apply to any existing product formulation that complies with the Table of Standards or any existing product formulation that is reformulated to meet the Table of Standards, provided the ozone depleting compound content of the reformulated product does not increase.

(g) The requirements of section 94509(e) shall not apply to any ozone-depleting compounds that may be present as impurities in a consumer product in an amount equal to or less than 0.01% by weight of the product.

(h) Requirements for charcoal lighter materials. The following requirements shall apply to all charcoal lighter material products as defined in section 94508(a):

(1) Regulatory Standards

(A) In all areas of California except the South Coast Air Quality Management District, no person shall sell, supply, or offer for sale after January 1, 1993 any charcoal lighter material product unless at the time of the transaction:

1. the manufacturer or distributor of the charcoal lighter material has been issued a currently effective certification pursuant to subsection (h)(2).
2. the charcoal lighter material meets the formulation criteria and other conditions specified in the applicable Executive Order issued pursuant to subsection (h)(2).
3. the product usage directions for the charcoal lighter material are the same as those provided to the Executive Officer pursuant to subsection (h)(2)(C).

(B) In the South Coast Air Quality Management District, the regulatory standards specified in subsection (h)(1)(A) shall be applicable upon the effective date of this subsection.

(2) Certification Requirements

(A) No charcoal lighter material formulation shall be certified under this subsection unless the applicant for certification demonstrates to the Executive Officer's satisfaction that the VOC emissions from the ignition of charcoal with the charcoal lighter material are less than or equal to 0.020 pound of VOC per start, using the procedures specified in the South Coast Air Quality Management District Rule 1174 Ignition Method Compliance Certification Protocol, dated February 27, 1991 (the "SCAQMD Rule 1174 Testing Protocol"). The provisions relating to LVP-VOC in sections 94508(a) and 94510(d) shall not apply to any charcoal lighter material subject to the requirements of sections 94509(a) and (h).

(B) The Executive Officer may approve alternative test procedures which are shown to provide equivalent results to those obtained using the SCAQMD Rule 1174 Testing Protocol.

(C) A manufacturer or distributor of charcoal lighter material may apply to the Executive Officer for certification of a charcoal lighter material formulation in accordance with this subsection (h)(2). The application shall be in writing and shall include, at a minimum, the following:

1. the results of testing conducted pursuant to the procedures specified in SCAQMD Rule 1174 Testing Protocol.
2. the exact text and/or graphics that will appear on the charcoal lighter material's principal display panel, label, and any accompanying literature. The provided material shall clearly show the usage directions for the product. These directions shall accurately reflect the quantity of charcoal lighter material per pound of charcoal that was used in the SCAQMD Rule 1174 Testing Protocol for that product, unless:

i) the charcoal lighter material is intended to be used in fixed amounts independent of the amount of charcoal used, such as certain paraffin cubes, or

ii) the charcoal lighter material is already incorporated into the charcoal, such as certain “bag light,” “instant light,” or “match light” products.

3. For a charcoal lighter material which meets the criteria specified in subsection (h)(2)(C)(2.)(i), the usage instructions provided to the Executive Officer shall accurately reflect the quantity of charcoal lighter material used in the SCAQMD Rule 1174 Testing Protocol for that product.

4. Any physical property data, formulation data, or other information required by the Executive Officer for use in determining when a product modification has occurred and for use in determining compliance with the conditions specified on the Executive Order issued pursuant to section (h)(2).

(D) Within 30 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 30 days of receipt of additional information, the Executive Officer shall advise the applicant in writing either that the application is complete, or that specified additional information or testing is still required before it can be deemed complete.

(E) If the Executive Officer finds that an application meets the requirements of this subsection (h)(2), then he or she shall issue an Executive Order certifying the charcoal lighter material formulation and specifying such conditions as are necessary to insure that the requirements of this subsection (h) are met. The Executive Officer shall act on a complete application within 90 days after the application is deemed complete.

(3) Notice of Modifications

For any charcoal lighter material for which certification has been granted pursuant to subsection (h)(2), the applicant for certification shall notify the Executive Officer in writing within 30 days of: (i) any change in the usage directions, or (ii) any change in product formulation, test results, or any other information submitted pursuant to subsection (h)(2) which may result in VOC emissions greater than 0.020 pound of VOC per start.

(4) Revocation of Certification

If the Executive Officer determines that any certified charcoal lighter material formulation results in VOC emissions from the ignition of charcoal which are greater than 0.020 pound of VOC per start, as determined by the SCAQMD Rule 1174 Testing Protocol and the statistical analysis procedures contained therein, the Executive Officer shall revoke or modify the certification as is necessary to assure that the charcoal lighter material will result in VOC emissions of less than or equal to 0.020 pound of VOC per start. The Executive Officer shall not revoke or modify the prior certification without first affording the applicant for the certification an opportunity for a hearing in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with section 60040), to determine if the certification should be modified or revoked.

(5) Notwithstanding any other provision of this subsection 94509(h), charcoal lighter material products manufactured prior to January 1, 1993, may be sold, supplied, or offered for sale until July 1, 1994, in all areas of

California except the South Coast Air Quality Management District. Charcoal lighter material products subject to SCAQMD Rule 1174 and sold, supplied, or offered for sale in the South Coast Air Quality Management District shall meet the requirements of sections 94509(h) upon the effective date of this subsection, regardless of the date on which the products were manufactured.

(i) Requirements for aerosol adhesives (as defined in section 94508(a)(1)).

(1) As specified in [Health and Safety Code section 41712\(h\)\(2\)](#), the standards for aerosol adhesives apply to all uses of aerosol adhesives, including consumer, industrial, and commercial uses. Except as otherwise provided in sections 94509(c), 94510, 94511, and 94514, no person shall sell, supply, offer for sale, use or manufacturer for sale in California any aerosol adhesive which, at the time of sale, use, or manufacture, contains VOCs in excess of the specified standard.

(2)(A) In order to qualify as a “Special Purpose Spray Adhesive” the product must meet one or more of the definitions for “Special Purpose Spray Adhesive” specified in section 94508(a)(1), but if the product label indicates that the product is suitable for use on any substrate or application not listed in one of the definitions for “Special Purpose Spray Adhesive,” then the product shall be classified as either a “Web Spray Adhesive” or a “Mist Spray Adhesive.”

(B) If a product meets more than one of the definitions specified in section 94508(a)(1) for “Special Purpose Spray Adhesive,” and is not classified as a “Web Spray Adhesive” or “Mist Spray Adhesive” under subsection 94509(i)(2)(A), then the VOC limit for the product shall be the lowest applicable VOC limit specified in section 94509(a).

(3) All aerosol adhesives must comply with the labeling requirements specified in section 94512(d), and all manufacturers and responsible parties for aerosol adhesives must comply with the special reporting requirements specified in section 94513(d).

(j) Requirements for Floor Wax Strippers. After an effective date of January 1, 2002, no person shall sell, supply, offer for sale, or manufacture for use in California any floor wax stripper unless the following requirements are met:

(1) The label of each nonaerosol floor wax stripper must specify a dilution ratio for light or medium build-up of polish that results in an as-used VOC concentration of 3 percent by weight or less.

(2) If a nonaerosol floor wax stripper is also intended to be used for removal of heavy build-up of polish, the label of that floor wax stripper must specify a dilution ratio for heavy build-up of polish that results in an as-used VOC concentration of 12 percent by weight or less.

(3) The terms “light build-up,” “medium build-up” or “heavy build-up” are not specifically required, as long as comparable terminology is used.

(k) Effective dates of the VOC limits for “Carburetor or Fuel-injection Air Intake Cleaners” and “Construction, Panel, or Floor Covering Adhesives.” The definitions for the product categories of “Carburetor or Fuel-injection Air Intake Cleaners” and

“Construction, Panel, or Floor Covering Adhesives” were modified as part of the “Mid-term Measures II” rulemaking action that was considered by the Board in October 1999. As a result of these modifications, certain types of consumer products were included in these definitions that had not previously been included. For those consumer products that were included in these definitions for the first time as a result of the “Mid-term Measures II” rulemaking action, the VOC limits (in section 94509(a)) applicable to these newly included products shall not become legally effective until December 31, 2002.

(l) Automotive Windshield Washer Fluids. The provisions of subsection 94509(b)(1) shall not apply to “Automotive Windshield Washer Fluid (Pre-Mixed)” as defined in section 94508(a).

(m) Requirements limiting the use of specific toxic compounds in specific consumer products categories.

(1) Requirements for products listed in Table (m)(1).

Except as provided below in sections 94509(m)(4), (m)(6), and (m)(7), after the applicable effective date specified in Table 94509(m)(1) for each product category, no person shall sell, supply, offer for sale, or manufacture for use in California any consumer product listed in Table 94509(m)(1) that contains any of the following compounds: methylene chloride, perchloroethylene, or trichloroethylene.

Table 94509(m)(1)

Product Categories in which Use of Methylene Chloride, Perchloroethylene, and Trichloroethylene is Prohibited

<i>Product Category</i>	<i>Effective Date</i>	<i>Sell- through Date</i>
Adhesive:		
Aerosol		
• Mist Spray Adhesive	1/1/2002	1/1/2005
• Web Spray Adhesive	1/1/2002	1/1/2005
• Special Purpose Spray Adhesive		
• Automobile Headliner Adhesive	1/1/2002	1/1/2005
• Automotive Engine Compartment Adhesive	1/1/2002	1/1/2005
• Flexible Vinyl Adhesive	1/1/2002	1/1/2005
• Laminate Repair/Edgebanding Adhesive	1/1/2002	1/1/2005
• Mounting Adhesive	1/1/2002	1/1/2005
• Polyolefin Adhesive	1/1/2002	1/1/2005

• Polystyrene Foam Adhesive	1/1/2002	1/1/2005
• Screen Printing Adhesive	1/1/2017	1/1/2020
Construction, Panel or Floor Covering Adhesive	12/31/2008	12/31/2011
Contact Adhesive		
• Contact Adhesive - General Purpose	12/31/2005	12/31/2008
• Contact Adhesive - Special Purpose	12/31/2005	12/31/2008

Adhesive Remover	12/31/2006	12/31/2009
• Floor or Wall Covering Adhesive Remover		
• Gasket or Thread Locking Adhesive Remover		
• General Purpose Adhesive Remover		
• Specialty Adhesive Remover		

Automotive Consumer Products:

See the Airborne Toxic Control Measure For Emissions Of Chlorinated

Toxic Air Contaminants From Automotive Maintenance And Repair

Activities, section 93111, title 17, California Code of Regulations for

additional requirements that apply to the Automotive Consumer

Products: Brake Cleaner, Carburetor or Fuel Injection Air Intake

Cleaner, Engine Degreaser, and General Purpose Degreaser - intended

for use in automotive maintenance or repair activities.

Bathroom and Tile Cleaner	12/31/2008	12/31/2011

Carpet/Upholstery Cleaner	12/31/2010	12/31/2013

Electrical Cleaner	12/31/2006	12/31/2009
Electronic Cleaner	12/31/2005	12/31/2008
Electronic Cleaner labeled as energized electronic equipment use only	12/31/2008	12/31/2011
Fabric Protectant	12/31/2010	12/31/2013
Footwear or Leather Care Product	12/31/2005	12/31/2008
General Purpose Cleaner	12/31/2008	12/31/2011
General Purpose Degreaser	12/31/2005	12/31/2008
Graffiti Remover	12/31/2006	12/31/2009
Lubricant:		
• Anti-Seize Lubricant	12/31/2013	12/31/2016
• Cutting or Tapping Oil	12/31/2013	12/31/2016
• Gear, Chain, or Wire Lubricant	7/1/2019	7/1/2022
• Multi-purpose Lubricant (excluding solid or semisolid products)	12/31/2010	12/31/2013
• Penetrant [See subsection 94509(m)(7) for an exclusion that applies to certain Penetrant products.]	12/31/2010	12/31/2013
• Rust Preventative or Rust Control Lubricant	12/31/2013	12/31/2016
• Silicone-based Multi-purpose Lubricant (excluding solid or semisolid products)	12/31/2012	12/31/2015
Metal Polish or Cleanser	12/31/2012	12/31/2015

.....		
Multi-purpose Solvent		
• aerosol	1/1/2016	1/1/2019
• nonaerosol	12/31/2010	12/31/2013
.....		
Oven or Grill Cleaner	12/31/2008	12/31/2011
.....		
Paint Thinner		
• aerosol	1/1/2016	1/1/2019
• nonaerosol	12/31/2010	12/31/2013
.....		
Pressurized Gas Duster (Trichloroethylene is not prohibited)	12/31/2010	12/31/2011
.....		
Single Purpose Cleaner	1/1/2017	1/1/2020
.....		
Single Purpose Degreaser	1/1/2017	1/1/2020
.....		
Sealant or Caulking Compound	12/31/2010	12/31/2013
.....		
Spot Remover	12/31/2012	12/31/2015
.....		

(2) Requirements for products listed in Table (m)(2).

Except as provided below in sections 94509(m)(4) after the applicable effective date specified in Table 94509(m)(2) for each product category, no person shall sell, supply, offer for sale, or manufacture for use in California any consumer product listed in Table 94509(m)(2) that contains para-dichlorobenzene.

Table 94509(m)(2)

Product Categories in which Use of Para-dichlorobenzene is Prohibited

<i>Product Category</i>	<i>Effective Date</i>	<i>Sell-through</i>

		<i>Date</i>
Air Freshener (solid)	12/31/2005	12/31/2006
Toilet/Urinal Care Products	12/31/2005	12/31/2006

(3) Requirements for products listed in Table (m)(3).

Except as provided below in sections 94509(m)(4) and (m)(6), after the applicable effective date specified in Table 94509(m)(3) for each product category, no person shall sell, supply, offer for sale, or manufacture for use in California any consumer product listed in Table 94509(m)(3) that contains an alkylphenol ethoxylate surfactant compound.

Table 94509(m)(3)

Product Categories in which Use of Alkylphenol Ethoxylate Surfactants is Prohibited

<i>Product Category</i>	<i>Effective Date</i>	<i>Sell-through Date</i>
General Purpose Cleaner		
(nonaerosol)	12/31/2012	12/31/2015
General Purpose Degreaser		
(nonaerosol)	12/31/2012	12/31/2015
Glass Cleaner (nonaerosol)	12/31/2012	12/31/2015
Heavy-duty Hand Cleaner or Soap		
(nonaerosol)	12/31/2013	12/31/2016
Oven or Grill Cleaner	12/31/2012	12/31/2015

(4) Sell-through of Products. Consumer products listed in Table 94509(m)(1), (m)(2), or (m)(3) that were manufactured before the specified effective date listed in Table 94509(m)(1), (m)(2), or (m)(3), may be sold, supplied, or offered for sale until the corresponding “sell-through” date listed in Table 94509(m)(1), (m)(2), or (m)(3), so long as the product complies with the product dating requirements in section 94512(b).

(5) Notification for products sold during the sell-through period. Any person who sells or supplies a consumer product identified listed in section 94509(m)(1), (m)(2), or (m)(3) must notify the purchaser of the product of the sell-through period dates, provided, however, that this notification must be given only if both of the following conditions are met:

(A) the product is sold or supplied to a distributor or retailer; and

(B) the product is sold or supplied within 6 months of the specified effective date.

(6) Impurities. The requirements of section 94509(m)(1) and (m)(5) shall not apply to any consumer product listed in Table 94509(m)(1) containing methylene chloride, perchloroethylene, or trichloroethylene that is present as an impurity in a combined amount equal to or less than 0.01% by weight.

(7) The requirements of section 94509(m)(1) shall not apply to “Penetrant” products used on equipment when electrical current exists; residual electrical potential from a component exists; or an open flame exists, as long as the “Principal Display Panel” clearly displays the statement: “Nonflammable: For use on energized equipment only.”

(n) Requirements limiting the use of any chemical compound that has a Global Warming Potential (GWP) Value of 150 or greater.

(1) Requirements for products listed in Table (n)(1)

Except as provided below in sections 94509(n)(2) and (n)(3), after the applicable effective date specified in Table 94509(n)(1), no person shall sell, supply, offer for sale, or manufacture for use in California any consumer product listed in Table 94509(n)(1) that contains any chemical compound that has a GWP Value of 150 or greater.

Table 94509(n)(1)

Product Categories in which Use of Any Chemical Compound that has a Global Warming Potential (GWP) Value of 150 or Greater is Prohibited

<i>Product Category</i>	<i>Effective Date</i>	<i>Sell-through Date</i>
Aerosol Adhesive:		
• Mist Spray Adhesive	1/1/2017	1/1/2020
• Web Spray Adhesive	1/1/2017	1/1/2020
• Screen Printing Adhesive	1/1/2017	1/1/2020
Double Phase Aerosol Air Freshener	12/31/2012	12/31/2015
Flying Bug Insecticide	12/31/2013	12/31/2016
Furniture Maintenance Product	12/31/2013	12/31/2016
Lubricant:		
• Anti-Seize Lubricant	12/31/2013	12/31/2016
• Cutting or Tapping Oil	12/31/2013	12/31/2016
• Gear, Chain, or Wire Lubricant	12/31/2013	12/31/2016
• Multi-Purpose Lubricant (excluding solid	7/1/2019	7/1/2022

or semisolid products)

• Rust Preventative or Rust Control

Lubricant	12/31/2013	12/31/2016

Metal Polish or Cleanser	12/31/2012	12/31/2015

Multi-purpose Solvent

• aerosol	1/1/2016	1/1/2019

• nonaerosol	12/31/2010	12/31/2013

Paint Thinner

• aerosol	1/1/2016	1/1/2019

• nonaerosol	12/31/2010	12/31/2013

Pressurized Gas Duster	12/31/2010	12/31/2011

Spot Remover	12/31/2012	12/31/2015

Wasp or Hornet Insecticide	12/31/2013	12/31/2016

(2) Sell-through of Products. Consumer products listed in Table 94509(n)(1) that were manufactured before the specified effective date listed in Table 94509(n)(1), may be sold, supplied, or offered for sale until the corresponding “sell-through” date listed in Table 94509(n)(1), so long as the product complies with the product dating requirements in section 94512(b).

(3) Notification for products sold during the sell-through period. Any person who sells or supplies a consumer product listed in section 94509(n)(1) must notify the purchaser of the product of the sell-through period dates, provided, however, that this notification must be given only if both of the following conditions are met:

(A) the product is sold or supplied to a distributor or retailer; and

(B) the product is sold or supplied within 6 months of the specified effective date.

(4) Impurities. The requirements of section 94509(n)(1), (n)(2), and (n)(3) shall not apply to any consumer product listed in Table 94509(n)(1) containing any chemical compound that is present as an impurity in a combined amount equal to or less than 0.1% by weight.

(o) Requirements for Fabric Softener - Single Use Dryer Product.

(1) Effective December 31, 2010, Fabric Softener - Single Use Dryer Product shall not contain more than 0.05 grams of VOC per use. Compliance with the VOC limit shall be determined per sheet, or equivalent delivery substrate, based on the minimum recommended use for a single drying cycle specified on the product packaging or label. In other words, if one sheet is the minimum recommended use for a single drying cycle, then the VOC limit applies per sheet. If two sheets are

the minimum recommended use for a single drying cycle, then the VOC limit applies to the aggregate VOC content in two sheets. For purposes of this subsection, “minimum recommended use” shall not include recommendations for incidental use of additional sheets, or equivalent delivery substrate, for limited applications such as for extra large or double loads of washable fabrics in large capacity clothes dryers.

(2) The provisions relating to fragrance in section 94510(c) shall not apply to Fabric Softener - Single Use Dryer Product subject to the requirements of this subsection 94509(o)(1).

(p) Additional requirements for “Multi-purpose Solvent” and “Paint Thinner.”

(1) Aromatic Compound Content.

(A) Nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products. Except as provided below in sections 94509(p)(2)(A), effective December 31, 2010, no person shall sell, supply, offer for sale, or manufacture for use in California a nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product that contains greater than 1% “Aromatic Compound” content by weight.

(B) Aerosol “Multi-purpose Solvent” and “Paint Thinner” products. Except as provided below in sections 94509(p)(2)(B), effective January 1, 2016, no person shall sell, supply, offer for sale, or manufacture for use in California an aerosol “Multi-purpose Solvent” or “Paint Thinner” product that contains greater than 1% “Aromatic Compound” content by weight.

(2) Sell-through of Products.

(A) Nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products. Nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products that contain greater than 1% “Aromatic Compound” content by weight; and were manufactured before December 31, 2010, may be sold, supplied, or offered for sale until December 31, 2013, so long as these products comply with the product dating requirements in section 94512(b).

(B) Aerosol “Multi-purpose Solvent” and “Paint Thinner” products. Aerosol “Multi-purpose Solvent” and “Paint Thinner” products that contain greater than 1% “Aromatic Compound” content by weight; and were manufactured before January 1, 2016, may be sold, supplied, or offered for sale until January 1, 2019, so long as these products comply with the product dating requirements in section 94512(b).

(3) Notification for products sold during the sell-through period.

(A) Nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products. Any person who sells or supplies a consumer product identified in section 94509(p)(2)(A) must notify the purchaser of the product in writing that the sell-through period for that product will end on December 31, 2013, provided, however, this notification must be given only if both of the following conditions are met:

1. the product is sold or supplied to a distributor or retailer; and

2. the product is sold or supplied on or after June 30, 2013.

(B) Aerosol “Multi-purpose Solvent” and “Paint Thinner” products. Any person who sells or supplies a consumer product identified in section 94509(p)(2)(B) must notify the purchaser of the product in writing that the sell-through period for that product will end on January 1, 2019, provided, however, this notification must be given only if both of the following conditions are met:

1. the product is sold or supplied to a distributor or retailer; and
2. the product is sold or supplied on or after June 30, 2018.

(4) Requirements for nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products sold, supplied, offered for sale, or manufactured for use in the South Coast Air Quality Management District (SCAQMD).

(A) Nonaerosol products that are sold, supplied, offered for sale, or manufactured for use in the SCAQMD that meet the definition of “Paint Thinner” or “Multi-purpose Solvent” do not meet the criteria for any other consumer product category and do not qualify under a definition of any other consumer product category that is defined in section 94508(a), regardless of any representation made that the product may be used as, or is suitable for use as another category of consumer product that is defined in section 94508(a).

(B) Standards for nonaerosol “Multi-purpose Solvent” and “Paint Thinner” products sold, supplied, offered for sale, or manufactured for use in the SCAQMD.

1. Effective December 31, 2010, no person shall sell, supply, offer for sale, or manufacture for use in the SCAQMD any nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product which, at the time of sale or manufacture, contains VOCs in excess of 30 percent by weight, as determined in accordance with procedures specified in section 94515(a) - (i) and as set forth in ARB Method 310, adopted September 25, 1997 and as last amended on August 1, 2014, which is incorporated herein by reference.

2. Effective December 31, 2013, no person shall sell, supply, offer for sale, or manufacture for use in the SCAQMD any nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product which, at the time of sale or manufacture, contains VOCs in excess of 3 percent by weight, as determined in accordance with procedures specified in section 94515(a) - (i) and as set forth in ARB Method 310, as last amended on August 1, 2014.

3. Effective January 1, 2015, no person shall sell, supply, offer for sale, or manufacture for use in the SCAQMD any nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product that contains VOCs in excess of 25 grams per liter of material (g/L) or 0.21 pounds per gallon (lb/Gal), as determined in accordance with procedures specified in section 94515(j) and as set forth in ARB Method 310, as last amended on August 1, 2014. As specified in section 94515(j) and section 3.6 of ARB Method 310, determination of the LVP-VOC content does not apply because there is no LVP-VOC exemption for these products.

(C) The provisions in sections 94509(m)(1), 94509(n), 94509(p)(1), (2) and (3), 94512(a)(4), and 94512(e) shall apply to any nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product sold, supplied, offered for sale, or manufactured for use in the SCAQMD.

(D) Sell-through of Products.

Nonaerosol “Multi-purpose Solvent” or “Paint Thinner” products sold, supplied, offered for sale, or manufactured for use in the SCAQMD that were manufactured before January 1, 2015, may be sold, supplied, or offered for sale until January 1, 2018, so long as these products comply with the product dating requirements in section 94512(b).

(E) Notification for products sold during the sell-through period.

Any person who sells or supplies a nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product identified in section 94509(p)(4)(D) must notify the purchaser of the product in writing that the sell-through period for that product will end on January 1, 2018, provided, however, this notification must be given only if both of the following conditions are met:

1. the product is sold or supplied to a distributor or retailer; and
2. the product is sold or supplied on or after June 30, 2017.

(q) Effective dates of the VOC limits for “Oven or Grill Cleaner.” The definition for the “Oven or Grill Cleaner” product category was modified as part of a rulemaking action to amend the California Consumer Products Regulation that was considered by the Board in November 2010. As a result of this modification, grill cleaning products were included in this definition that had not previously been included. For those grill cleaning products that were included in this definition for the first time as a result this rulemaking action, the VOC limits (in section 94509(a)) applicable to these newly included products shall not become legally effective until December 31, 2012.

(r) Alternate compliance option for “Multi-purpose Lubricant” products.

(1) For the purpose of subsections 94509(r), 94513(h), and 94515(k), the following definitions apply:

(A) “Base Reactive Organic Gas Mixture (Base ROG Mixture)” means the mixture of reactive organic gases utilized in deriving the maximum incremental reactivity scale.

(B) “Chemical Compound” means a molecule of definite chemical formula and chemical structure.

(C) “Chemical Mixture” means a substance comprised of two or more chemical compounds.

(D) “Ingredient” means a chemical compound or a chemical mixture.

(E) “Maximum Incremental Reactivity (MIR)” means the maximum change in weight of ozone formed by adding a compound to the Base ROG Mixture per weight of compound added, expressed to hundredths of a gram (g O₃/g ROC).

(F) “Product Formulation” means the weight fraction of all ingredients.

(G) “Production Records” mean product formulation information disclosing the actual quantity of all ingredients used to manufacture a “Multi-purpose Lubricant” product on the date of manufacture. Such records shall include:

1. Batch production record with the date of manufacture;
2. Quality control records;
3. Raw materials invoices and physical property data;
4. Production equipment maintenance records;
5. Records of the weight fraction of all ingredients including the hydrocarbon solvent bin number, as listed in section 94701, manufacturer name, and trade name. For ingredients not listed in sections 94700, 94701, or 94509(r)(5), each chemical compound in the mixture must be reported separately; and
6. Any laboratory results of testing conducted at the time of manufacture to establish the VOC content and reactivity of the product.

(H) “Product-Weighted MIR (PWMIR)” means the sum of all weighted-MIR for all ingredients in a “Multi-purpose Lubricant” product. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (g O₃/g product), excluding container and packaging.

(I) “Reactive Organic Compound (ROC)” means any compound containing at least one atom of carbon and that has the potential, once emitted, to contribute to ozone formation in the troposphere.

(J) “Reactivity Limit” means the maximum ozone forming potential of ingredients (excluding container and packaging) allowed in a “Multi-purpose Lubricant” product, expressed as the PWMIR.

(2) “Multi-purpose Lubricant” products subject to the 10 percent by weight VOC standard in section 94509(a) may comply by meeting the provisions of this subsection. “Multi-purpose Lubricant” products subject to the most restrictive limit provisions in subsection 94512(a) are ineligible to comply using this subsection. “Multi-purpose Lubricant” products subject to an Alternative Control Plan are ineligible to comply using this subsection.

To qualify for this compliance option, a Responsible Party must meet the following criteria:

(A) The Responsible Party must identify the product(s) that will comply by meeting the Reactivity Limit specified in subsection 94509(r)(3);

(B) The Responsible Party must declare the VOC content of the product(s) and the VOC content must not exceed 25 percent by weight; and

(C) The Responsible Party must provide the Executive Officer with the formulation of the product(s), as specified in subsection 94513(h).

(D) Until July 1, 2019, the Responsible Party must provide to the Executive Officer the information required in subsection 94509(r)(2)(A) through (2)(C) at least 90 calendar days before the effective date of the 10 percent by weight VOC standard.

(E) On or after July 1, 2019, the Responsible Party must provide to the Executive Officer the information required in subsection 94509(r)(2)(A) through (2)(C) at least 30 calendar days before a new product is made available on the market.

(F) If any criteria of subsection 94509(r)(2) are not met, a product will not qualify for the alternate compliance option and will be subject to the 10 percent by weight VOC standard specified in subsection 94509(a) for “Multi-purpose Lubricant” (excluding solid or semisolid products).

(G) A Responsible Party using the alternate compliance option for a future product must meet the criteria in subsection 94509(r)(2).

(3) “Multi-purpose Lubricant” products complying under this subsection shall not exceed a Reactivity Limit of 0.45 g O₃/g product.

(4) The PWMIR shall be calculated according to the following equation:

$$\text{Product-Weighted MIR} = (\text{Wtd-MIR})_1 + (\text{Wtd-MIR})_2 + \dots + (\text{Wtd-MIR})_n$$

where:

MIR = ingredient MIR, as specified in subsection 94509(r)(5);

Wtd-MIR = MIR of each ingredient in a product multiplied by the weight fraction of that ingredient; and

1,2,3,...,n = each ingredient in the product up to the total n ingredients in the product.

To calculate the PWMIR of a “Multi-purpose Lubricant,” the MIR values dated October 2, 2010, as set forth in Subchapter 8.6, Article 1, section 94700 or 94701, and the MIR values specified in subsection 94509(r)(5) must be used until at least July 1, 2021. All ingredients present in the formulation in an amount equal to or exceeding 0.1 percent by weight must be used to calculate the PWMIR.

(5) Assignment of Maximum Incremental Reactivity (MIR) Values.

The MIR values of product ingredients are assigned as follows:

- (A) Any ingredient which does not contain at least one atom of carbon is assigned an MIR value of 0.0;
- (B) Carbon dioxide is assigned an MIR value of 0.0;
- (C) Ingredients that are solid are assigned an MIR value of 0.0;
- (D) For aliphatic hydrocarbon solvent “Alkane Mixed - Minimally 90% C13 and higher carbon number,” the MIR value of 0.60 g O₃/g ROC must be used to calculate the PWMIR; and
- (E) For fragrance, as defined in section 94508(a)(54), present in a “Multi-purpose Lubricant” product, the MIR value for terpinolene, as listed in section 94700, must be used to calculate the PWMIR unless detailed fragrance ingredients information is available to determine the MIR value of the fragrance.
- (F) Any ingredient not covered under subsections 94509(r)(5)(A), (5)(B), (5)(C), (5)(D), or (5)(E) is assigned the MIR value for that ingredient as set forth in section 94700 or 94701.
- (G) If a ROC is not listed in section 94700 but an isomer(s) of the ROC is listed, then the MIR value for the isomer must be used. If more than one isomer is listed, the listed MIR value for the isomer with the highest MIR value must be used.
- (H) If a ROC or its isomer(s) is not listed in section 94700, the MIR value for Base ROG Mixture must be used to determine the weighted MIR of the ROC to calculate the PWMIR.
- (I) If a new ingredient is added to section 94700 or 94701, the MIR value for the new ingredient must be used instead of the value specified in subsection 94509(r)(5)(G) or (5)(H) to calculate the PWMIR after the effective date of the MIR value.

Note: Authority cited: [Sections 38500, 38501, 38510, 38560, 38560.5, 38562, 38580, 39600, 39601, 39650, 39658, 39659, 39666 and 41712, Health and Safety Code](#). Reference: [Sections 38505, 39002, 39600, 39650, 39655, 39656, 39658, 39659, 39666, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of table in subsection (a), new table in subsection (a), amendment of subsections (c)-(f), redesignating of subsection (f)(2) to (g) and amendment, and new subsections (h)-(h)(5) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).

3. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsection (a) filed 12-23-97; operative 12-23-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 52).
5. Amendment filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
6. Amendment of subsection (a) filed 8-24-98; operative 8-24-98 pursuant to [Government Code section 11343.4\(d\)](#) (Register 98, No. 35).
7. Amendment implementing Mid-Term Measures II redesigning table of standards and adding subsections (k)-(l) filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).
8. Amendment of Table of Standards, amendment and redesignation of portion of subsection (i) as subsection (i)(1), new subsections (i)(2)-(4) and amendment of Note filed 4-18-2001; operative 5-18-2001 (Register 2001, No. 16).
9. Amendment of section and Note filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
10. Amendment of subsections (a), (e), (h)(1)(A), (i), (i)(2)(A)-(B) and (l) and new subsections (p)-(p)(4) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
11. Amendment of subsection (a), new subsection (b)(4), amendment of subsections (c)(1)(C), (e), (h), (h)(2)(A), (h)(2)(C)3., (i)(2)(A)-(B), (l) and (p)(2), new subsections (q)-(s)(2) and amendment of Note filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).
12. Amendment of subsection (a) - Table of Standards and subsections (b)(3), (i)(3), (m)(2), (n)(2), (o)(1) and (r)(5) and new subsections (t)-(u)(4)(B) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).
13. Editorial correction of subsection (a) - Table of Standards (Register 2010, No. 52).
14. Amendment filed 11-10-2011; operative 12-10-2011 (Register 2011, No. 45).
15. Amendment of “Automotive Windshield Washer Fluid” product category within subsection (a) - Table of Standards, amendment of subsections (b)(3), (b)(3)(B) and (b)(3)(B)3. and new subsection (b)(3)(C) filed 4-25-2013; operative 7-1-2013 (Register 2013, No. 17).
16. Amendment of subsections (a), (b)(1), (i), (i)(2)(A)-(B), (k), (m)(1), (n)(1) and (p)-(p)(3)(A)2. and new subsections (p)(3)(B)-(p)(4)(E)2. filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).
17. Amendment of “Gear, Chain or Wire Lubricant aerosol” and “Multi-purpose Lubricant” categories and corresponding footnotes within subsection (a) - Table of Standards, addition of “Multi-purpose Lubricant” product category within Table (n) (1) and new subsections (r)(1)-(r)(5)(I) filed 12-31-2018; operative 1-1-2019 pursuant to [Government Code section 11343.4\(b\)\(3\)](#) (Register 2019, No. 1).

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17 CCR § 94509, 17 CA ADC § 94509

Barclays Official California Code of Regulations Currentness
Title 17. Public Health
Division 3. Air Resources
Chapter 1. Air Resources Board
Subchapter 8.5. Consumer Products
Article 2. Consumer Products

17 CCR § 94510

§ 94510. Exemptions.

- (a) This article shall not apply to any consumer products manufactured in California for shipment and use outside of California.
- (b) The provisions of this article shall not apply to a manufacturer or distributor who sells, supplies, or offers for sale in California a consumer product that does not comply with the VOC standards specified in Section 94509, as long as the manufacturer or distributor can demonstrate both that the consumer product is intended for shipment and use outside of California, and that the manufacturer or distributor has taken reasonable prudent precautions to assure that the consumer product is not distributed to California. This subsection (b) does not apply to consumer products that are sold, supplied, or offered for sale by any person to retail outlets in California.
- (c) Except for Pressurized Gas Duster, the VOC limits specified in Section 94509(a) shall not apply to fragrances up to a combined level of 2 percent by weight contained in any consumer product.
- (d) The VOC limits specified in Section 94509(a) shall not apply to any LVP-VOC.
- (e) The requirements of Section 94512(b) shall not apply to consumer products registered under the Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA; [7 U.S.C. Section 136-136y](#)).
- (f) The VOC limits specified in Section 94509(a) shall not apply to air fresheners that are comprised entirely of fragrance, less compounds not defined as VOCs under Section 94508 or exempted under Section 94510(d).
- (g) The VOC limits specified in Section 94509(a) shall not apply to:
- (1) insecticides containing at least 98% para-dichlorobenzene.
 - (2) Until December 30, 2006, the VOC limits specified in Section 94509(a) shall not apply to solid air fresheners containing at least 98% para-dichlorobenzene. On or after December 31, 2006, the provisions of section 94509(m)(2) apply to solid air fresheners containing para-dichlorobenzene.
- (h) Except as specified in 94510(h)(3) below, the VOC limits specified in Section 94509(a) shall not apply to:

(1) existing personal fragrance products or personal fragrance products in development on or before April 1, 1992, provided that both (i) the registration data specified in section 94513 is submitted for every such product by the date specified in section 94513(a), or prior to July 1, 1993, whichever date occurs later, and (ii) such product is sold in California prior to January 1, 1994. For the purposes of this subsection, a product “in development” means:

(A) a product which a fragrance materials manufacturer is designing at the request of a personal fragrance product manufacturer, or

(B) a product which is the subject of a written marketing profile or other documentation authorizing the creation and marketing of the product.

(2) personal fragrance products in development may be registered to qualify for this exemption under hypothetical trade names or pseudonyms, provided that the actual trade name is supplied to the Executive Officer within 30 days of marketing such products, or January 1, 1994, whichever occurs first.

(3) Effective December 31, 2014, subsections 94510(h)(1) and 94510(h)(2) shall no longer apply to any “Personal Fragrance Product” that contains 20 percent or less fragrance. Products manufactured before December 31, 2014 may be sold, supplied, or offered for sale until December 31, 2017, so long as the product complies with the product dating requirements in Section 94512(b).

(i) The VOC limits specified in section 94509(a) shall not apply to adhesives sold in containers of 1 fluid ounce or less.

(j) The VOC limits specified in Section 94509(a) shall not apply to any VOC which is a fragrance in a personal fragrance product.

(k) The VOC limits specified in 94509(a) shall not apply to bait station insecticides. For the purpose of this section, bait station insecticides are containers enclosing an insecticidal bait that is not more than 0.5 ounce by weight, where the bait is designed to be ingested by insects and is composed of solid material feeding stimulants with less than 5 percent (%) active ingredients.

(l) Except as specified in 94510(l)(1), the 1/1/99 VOC limits specified in Section 94509(a) for personal fragrance products shall not apply to such products which have been sold in California prior to 1/1/99.

(1) On or after December 31, 2014, the 75 percent by weight VOC limit shall apply to any “Personal Fragrance Product” that contains 20 percent or less fragrance. Products manufactured before December 31, 2014 may be sold, supplied, or offered for sale until December 31, 2017, so long as the product complies with the product dating requirements in Section 94512(b).

(m) Until December 31, 2013, the VOC limits specified in Section 94509(a), and the prohibition of Aromatic Compounds listed in section 94509(p)(1), shall not apply to Paint Thinners that are packaged in containers with a capacity less than or equal to 8 fluid ounces.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsections (b)-(d) and (g) and new subsections (h)-(l) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsection (b) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
5. Amendment of subsection (g) and new subsections (g)(1)-(2) filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
6. Amendment of subsection (e) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
7. Amendment of subsections (c) and (h), new subsection (h)(3), amendment of subsection (l) and new subsection (l)(1) filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).
8. New subsection (m) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).
9. Amendment of subsections (c), (g)(2) and (m) filed 11-10-2011; operative 12-10-2011 (Register 2011, No. 45).

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17 CCR § 94510, 17 CA ADC § 94510

Barclays Official California Code of Regulations Currentness

Title 17. Public Health

Division 3. Air Resources

Chapter 1. Air Resources Board

Subchapter 8.5. Consumer Products

Article 2. Consumer Products

17 CCR § 94511

§ 94511. Innovative Products.

(a) The Executive Officer shall exempt a consumer product from the VOC limits specified in Section 94509(a) if a manufacturer demonstrates by clear and convincing evidence that, due to some characteristic of the product formulation, design, delivery systems or other factors, the use of the product will result in less VOC emissions as compared to:

(1) the VOC emissions from a representative consumer product which complies with the VOC limits specified in Section 94509(a), or

(2) the calculated VOC emissions from a noncomplying representative product, if the product had been reformulated to comply with the VOC limits specified in section 94509(a). VOC emissions shall be calculated using the following equation:

$$E_R = \frac{E_{NC} \times \text{VOC}_{STD}}{\text{VOC}_{NC}}$$

where:

E_R = The VOC emissions from the noncomplying representative product, had it been reformulated.

E_{NC} = The VOC emissions from the noncomplying representative product in its current formulation.

VOC_{STD} = the VOC limit specified in 94509(a).

VOC_{NC} = the VOC content of the noncomplying product in its current formulation.

If a manufacturer demonstrates that this equation yields inaccurate results due to some characteristic of the product formulation or other factors, an alternative method which accurately calculates emissions may be used upon approval of the Executive Officer.

(b) For the purposes of this section, “representative consumer product” means a consumer product which meets all of the following criteria:

(1) the representative product shall be subject to the same VOC limit in Section 94509(a) as the innovative product.

(2) the representative product shall be of the same product form as the innovative product, unless the innovative product uses a new form which does not exist in the product category at the time the application is made.

(3) the representative product shall have at least similar efficacy as other consumer products in the same product category based on tests generally accepted for that product category by the consumer products industry.

(c) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under subsection (a). The application shall include the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition, the applicant must provide any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption including the VOC content for the innovative product and test methods for determining the VOC content. All information submitted by a manufacturer pursuant to this section shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Sections 91000-91022.

(d) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete as provided in [section 60030\(a\), Title 17, California Code of Regulations](#).

(e) Within 90 days after an application has been deemed complete, the Executive Officer shall determine whether, under what conditions, and to what extent, an exemption from the requirements of Section 94509(a) will be permitted. The applicant and the Executive Officer may mutually agree to a longer time period for reaching a decision, and additional supporting documentation may be submitted by the applicant before a decision has been reached. The Executive Officer shall notify the applicant of the decision in writing and specify such terms and conditions that are necessary to ensure that emissions from the product will meet the emissions reductions specified in subsection (a), and that such emissions reductions can be enforced.

(f) In granting an exemption for a product the Executive Officer shall establish conditions that are enforceable. These conditions shall include the VOC content of the innovative product, dispensing rates, application rates, and any other parameters determined by the Executive Officer to be necessary. The Executive Officer shall also specify the test methods for determining conformance to the conditions established. The test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures.

(g) For any product for which an exemption has been granted pursuant to this section, the manufacturer shall notify the Executive Officer in writing within 30 days of any change in the product formulation or recommended product usage directions, and shall also notify the Executive Officer within 30 days if the manufacturer learns of any information which would alter the emissions estimates submitted to the Executive Officer in support of the exemption application.

(h) If the VOC limits specified in Section 94509(a) are lowered for a product category through any subsequent rulemaking, all innovative product exemptions granted for products in the product category, except as provided in this subsection (h), shall

have no force and effect as of the effective date of the modified VOC standard. This subsection (h) shall not apply to those innovative products which have VOC emissions less than the applicable lowered VOC limit and for which a written notification of the product's emissions status versus the lowered VOC limit has been submitted to and approved by the Executive Officer at least 60 days before the effective date of such limits.

(i) If the Executive Officer believes that a consumer product for which an exemption has been granted no longer meets the criteria for an innovative product specified in subsection (a), the Executive Officer may modify or revoke the exemption as necessary to assure that the product will meet these criteria. The Executive Officer shall not modify or revoke an exemption without first affording the applicant an opportunity for a public hearing held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040), to determine if the exemption should be modified or revoked.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsection (a) to create a new subsection (a)(1), new subsection (a)(2), amendment of subsection (b), new subsections (b)(1)-(3), repealer of subsection (c) and relettering, and amendment of subsections (c), (e)-(f), and (h)-(i) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsections (e) and (f) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).

This database is current through 6/19/20 Register 2020, No. 25

17 CCR § 94511, 17 CA ADC § 94511

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17 CCR § 94512

§ 94512. Administrative Requirements.

(a) *Most Restrictive Limit.*

(1) Except as provided below in section 94512(a)(4), notwithstanding the definition of “product category” in Section 94508, if anywhere on the container or packaging of any consumer product manufactured on or after January 1, 2007, *or any FIFRA-registered insecticide manufactured on or after January 1, 2008*, or on any sticker or label affixed thereto, any representation is made that the product may be used as, or is suitable for use as a consumer product for which a lower VOC limit is specified in Section 94509(a), then the lowest VOC limit shall apply. This requirement does not apply to general purpose cleaners and insecticide foggers.

(2) *Rule that applies when Product Category definitions exclude each other.*

When determining the applicable VOC standard for a product that meets the definitions for both “Regulated Category A” and “Regulated Category B”, in circumstances where the definition of “Regulated Category A” states that it excludes “Regulated Category B”, and the definition of “Regulated Category B” states that it excludes “Regulated Category A,” the product is subject to the VOC standard for whichever regulated category, “A” or “B,” has the lower VOC standard.

For the purposes of this section, a “Regulated Category” means a category of consumer products that is both: (A) defined in section 94508(a), and (B) has a VOC standard specified in section 94509(a) for that product category.

(3) Notwithstanding the provisions of section 94512(a)(1) and (2), a product that makes ancillary disinfecting, sanitizing, or antimicrobial claims on the label is not subject to the VOC standards for “Disinfectant” or “Sanitizer” if the product is designed and labeled on the Principal Display Panel as a “Bathroom and Tile Cleaner,” “Carpet/Upholstery Cleaner,” “Fabric Refresher,” “General Purpose Cleaner,” “Glass Cleaner,” “Metal Polish or Cleanser,” or “Toilet/Urinal Care Product.”

(4) Pursuant to section 94509(p)(4), the provisions of section 94512(a)(1), (a)(2), and (a)(3) shall not apply to nonaerosol “Multi-purpose Solvent” or “Paint Thinner” product sold, supplied, offered for sale, or manufactured for use in the South Coast Air Quality Management District.

(b) *Product Dating*

(1) Each manufacturer of a consumer product subject to Section 94509 shall clearly display on each consumer product container or package, the day, month, and year on which the product was manufactured, or a code indicating such date. Codes that represent a sequential batch number, or that otherwise cannot be attributed to a specific day, month, and year, do not satisfy this requirement.

(2) A manufacturer who uses the following code to indicate the date of manufacture shall not be subject to the requirements of section 94512(c)(1), if the code is represented separately from other codes on the product container so that it is easily recognizable:

YY DDD = year year day day day

Where: “YY” = two digits representing the year in which the product was manufactured, and

“DDD” = three digits representing the day of the year on which the product was manufactured, with “001” representing the first day of the year, “002” representing the second day of the year, and so forth (i.e. the “Julian date”).

(3) This date or code shall be displayed on each consumer product container or package no later than twelve months prior to the effective date of the applicable standard specified in section 94509.

(4) Except as otherwise provided in subsection (b)(5), for products manufactured on or after January 1, 2006, the date or code shall be displayed on the product container such that it is readily observable without irreversibly disassembling any portion of the product container or packaging. For the purposes of this subsection, information may be displayed on the bottom of a container as long as it is clearly legible without removing any product packaging.

(5) Products Sold in Multi-unit Packages.

(A) Products sold, supplied, or offered for sale in multi-unit packages are not required to comply with subsection (b)(4).

(B) If a multi-unit package does not comply with subsection (b)(4), the “sell-through” provisions of section 94509(c)(1) shall not apply to the individual product units contained within the multi-unit package. In other words, if any multi-unit package produced or assembled after January 1, 2006, does not display the date(s) or date-code(s) of the product units, such that the displayed information is readily observable without irreversibly disassembling any portion of the container or packaging, the individual product units shall be subject to the VOC standards in effect when the multi-unit package is sold, supplied, or offered for sale, regardless of the date on which the product units were manufactured.

(C) A multi-unit package may comply with subsection (b)(4) by displaying the date of assembly instead of the date(s) or date-code(s) of the individual product units, so long as the date of assembly is readily observable without irreversibly disassembling any portion of the container or packaging. The “date of assembly” means the date that the individual product units are assembled into the finished multi-unit package. If the date of assembly is displayed instead of the individual date(s) or date-code(s), the “date of assembly” shall be the “date of manufacture” for all of the product units contained within the multi-unit package. In other words, all of the product units shall be deemed to have been manufactured on the date these units are assembled into the multi-unit package, even if the individual product units show different date(s) or

date-code(s), and the “date of assembly” shall be “date of manufacture” of each product unit for the purposes of applying the “sell-through” provisions of section 94509(c).

(6) The requirements of this subsection (b) shall not apply to:

(A) personal fragrance products of 2 milliliters or less, which are offered to consumers free of charge for the purpose of sampling the product; or

(B) products containing no VOCs (as defined in section 94508), or containing VOCs at 0.10% by weight or less.

(c) *Additional Product Dating Requirements*

(1) If a manufacturer uses a code indicating the date of manufacture, for any consumer product subject to section 94509 an explanation of the code must be filed with the Executive Officer of the ARB no later than twelve months prior to the effective date of the applicable standard specified in section 94509. Thereafter, manufacturers using a code must file an explanation of the code with the Executive Officer on an annual basis, beginning in 2006. The explanation of the code must be received by the Executive Officer on or before January 31st of each year, with the first explanation due on or before January 31, 2006.

(2) If a manufacturer changes any code indicating the date of manufacture for any consumer product subject to subsection (c)(1), an explanation of the modified code must be received by the Executive Officer before any products displaying the modified code are sold, supplied, or offered for sale in California.

(3) No person shall erase, alter, deface, or otherwise remove or make illegible any date or code indicating the date of manufacture from any regulated product container without the express authorization of the manufacturer.

(4) Codes indicating the date of manufacture are public information and may not be claimed as confidential.

(d) *Additional Labeling Requirements for Aerosol Adhesive , Adhesive Remover, Electronic Cleaner, Electrical Cleaner, Energized Electrical Cleaner, Contact Adhesive, and Sealant or Caulking Compound (nonaerosol).*

(1) In addition to the requirements specified in subsections (a), (b) and (c), both the manufacturer and responsible party for each aerosol adhesive, adhesive remover, electronic cleaner, electrical cleaner, energized electrical cleaner, contact adhesive product, and sealant or caulking compound (nonaerosol) subject to this article shall ensure that all products clearly display the following information on each product container which is manufactured on or after the effective date for the category specified in section 94509(a), except that for nonchemically curing sealant or caulking compound (nonaerosol), the effective date of this requirement is December 31, 2010, and for chemically curing sealant or caulking compound (nonaerosol), the effective date of this requirement is December 31, 2012:

(A) The product category as specified in section 94509(a) or an abbreviation of the category shall be displayed;

(B) 1. The applicable VOC standard for the product is specified in section 94509(a), except for Energized Electrical Cleaner, expressed as a percentage by weight, shall be displayed unless the product is included in an alternative control plan approved by the Executive Officer, as provided in [Article 4, Sections 94540-94555, Title 17, California Code of Regulations](#), and the product exceeds the applicable VOC standard;

2. If the product is included in an alternative control plan approved by the Executive Officer, and the product exceeds the applicable VOC standard specified in section 94509(a), the product shall be labeled with the term “ACP” or “ACP product;”

(C) If the product is classified as a special purpose spray adhesive, the applicable substrate and/or application or an abbreviation of the substrate/application that qualifies the product as special purpose shall be displayed;

(D) If the manufacturer or responsible party uses an abbreviation as allowed by this subsection 94512(d)(1)(A), an explanation of the abbreviation must be filed with the Executive Officer before the abbreviation is used.

(2) The information required in section 94512(d)(1), shall be displayed on the product container such that it is readily observable without removing or disassembling any portion of the product container or packaging. For the purposes of this subsection, information may be displayed on the bottom of a container as long as it is clearly legible without removing any product packaging.

(3) No person shall remove, alter, conceal, or deface the information required in section 94512(d)(1) prior to final sale of the product.

(e) Additional Requirements for Multi-purpose Solvent and Paint Thinner.

The following requirements apply in addition to the requirements specified in section 94512(a), (b), and (c):

(1) Except as provided below in section 94512(e)(2), effective December 31, 2010, until December 31, 2017, no person shall sell, supply, offer for sale, or manufacture for use in California any “Flammable” or “Extremely Flammable” Multi-purpose Solvent or Paint Thinner named, on the Principal Display Panel as “Paint Thinner,” “Multi-purpose Solvent,” “Clean-up Solvent,” or “Paint Clean-up.”

(2) Section 94512(e)(1) does not apply to products that meet either of the following criteria:

(A) Products which include an attached “hang tag,” sticker, or contrasting square or rectangular area on the Principal Display Panel that displays, at a minimum, the following statements in a font size as large as, or larger than, the “signal word” (i.e., “DANGER,” “WARNING,” or “CAUTION”) as specified in [title 16, Code of Federal Regulations, section 1500.121](#):

“Formulated to meet California VOC limits; see warnings on label; Veá las advertencias en la etiqueta, formulado complacientes con leyes de California” or

(B) Products where the Principal Display Panel displays, in both English and Spanish and a font size as large as, or larger than, the font size of all other words on the Principal Display Panel, excluding the company name, brand name, and logo, the common name of the chemical compound (e.g., “Acetone,” “Methyl acetate,” etc.) that results in the product meeting the criteria for “Flammable” or “Extremely Flammable.”

(3) For the purposes of this subsection (e), a product is “Flammable” or “Extremely Flammable” if it is labeled as “Flammable” or “Extremely Flammable” on the product container, or if the product meets the criteria for these terms specified in title 16, Code of Federal Regulations, section 1500.3(c)(6).

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsections (b), (b)(2) and (c) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
5. New subsections (d)-(d)(3) filed 4-18-2001; operative 5-18-2001 (Register 2001, No. 16).
6. Amendment filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
7. Amendment of subsection (a)(3) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
8. Amendment of subsections (b)(1), (d)-(d)(1) and (d)(1)(D) filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).
9. New subsections (e)-(e)(3) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).
10. Repealer of subsection (a)(3), new subsections (a)(3)-(4) and amendment of subsections (d)-(d)(1) filed 11-10-2011; operative 12-10-2011 (Register 2011, No. 45).
11. Repealer of subsection (a)(1), subsection renumbering, amendment of newly designated subsections (a)(1) and (a)(3), new subsection (a)(4) and amendment of subsections (e)(1) and (e)(2)(A)-(B) filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94512, 17 CA ADC § 94512

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Title 17. Public Health

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Chapter 1. Air Resources Board

Subchapter 8.5. Consumer Products

Article 2. Consumer Products

17 CCR § 94513

§ 94513. Reporting Requirements.

(a) Upon 90 days written notice, the Executive Officer may require any responsible party to report information for any consumer product or products the Executive Officer may specify including, but not limited to, all or part of the following information specified in the following subsections (a)(1) through (a)(12). If the responsible party does not have or does not provide the information requested by the Executive Officer, the Executive Officer may require the reporting of this information by the person that has the information, including, but not limited to, any formulator, manufacturer, supplier, parent company, private labeler, distributor, or repackager.

- (1) the company name, address, telephone number, and designated contact person;
- (2) any claim of confidentiality made pursuant to [Title 17, California Code of Regulations, Section 91011](#);
- (3) the product brand name for each consumer product and the product label;
- (4) the product category to which the consumer product belongs;
- (5) the applicable product form(s) listed separately;
- (6) an identification of each product brand name and form as a “Household Product,” “I&I Product,” or both;
- (7) separate California sales in pounds per year, to the nearest pound, and the method used to calculate California sales for each product form;
- (8) for information submitted by multiple companies, an identification of each company which is submitting relevant data separate from that submitted by the responsible party. All information from all companies shall be submitted by the date specified in Section 94513(a);
- (9) for each product brand name and form, the net percent by weight of the total product, less container and packaging, comprised of the following, rounded to the nearest one-tenth of a percent (0.1%):

(A) Total Table B Compounds

(B) Total LVP-VOCs that are not fragrances

(C) Total All Other Carbon-Containing Compounds that are not fragrances

(D) Total All Non-Carbon-Containing Compounds

(E) Total Fragrance

(F) For products containing greater than two percent by weight fragrance, but excluding “personal fragrance products”:

(i) the percent of fragrance that are LVP-VOCs, and

(ii) the percent of fragrance that are all other carbon-containing compounds

(G) For “personal fragrance products,” the density of the fragrance

(H) Total Para-dichlorobenzene

(10) for each product brand name and form, the identity, including the specific chemical name and associated Chemical Abstract Services (CAS) number, of the following:

(A) Each Table B Compound

(B) Each LVP-VOC that is not a fragrance

(11) if applicable, the weight percent comprised of propellant for each product;

(12) if applicable, an identification of the type of propellant (Type A, Type B, Type C, or a blend of the different types);

(b) In addition to the requirements of section 94513(a)(10), the responsible party shall report or shall arrange to have reported to the Executive Officer the net percent by weight of each ozone-depleting compound which is (1) listed in section 94509(e) and (2) contained in a product subject to reporting under section 94513(a) in any amount greater than 0.1 percent by weight.

(c) All information submitted by any person pursuant to section 94513 shall:

(1) Be accompanied by a signed statement declaring under penalty of perjury that the information submitted is accurate, true, and complete; and

(2) Be handled in accordance with the procedures specified in Title 17, California Code of Regulations, sections 91000-91022.

(d) Special Reporting Requirements for Aerosol Adhesives

On or before March 31, 2004, all responsible parties for aerosol adhesives shall report to the Executive Officer the following information for products sold or offered for sale in California:

(1) data regarding product sales and composition for the year 2003, including the information listed in Section 94513(a), and any other information that the Executive Officer may specify; and

(2) a written update of the research and development efforts undertaken to achieve VOC limits lower than the limits specified in section 94509(a). The written update must include detailed information about the raw materials (solvents, propellants, resins, and polymers) and hardware (valves, actuators, cans) used in product reformulation, the testing protocols used, the results of the testing, and the cost of reformulation efforts.

(3) On or before December 31, 2003, the Executive Officer shall notify responsible parties in writing that they are to submit aerosol adhesive product and research data by March 31, 2004.

(e) Special Reporting Requirements for Consumer Products that Contain Perchloroethylene or Methylene Chloride:

(1) The requirements of this subsection shall apply to all responsible parties for:

(A) consumer products that are subject to section 94509(a) and contain perchloroethylene or methylene chloride, and

(B) Energized Electrical Cleaners as defined in section 94508(a), that contain perchloroethylene or methylene chloride. For the purposes of this subsection, a product “contains perchloroethylene or methylene chloride” if the product contains 1.0 percent or more by weight (exclusive of the container or packaging) of either perchloroethylene or methylene chloride.

(2) For each consumer product that contains perchloroethylene or methylene chloride, the responsible party shall report the following information for products sold in California during each calendar year, beginning with the year 2000, and ending with the year 2010:

(A) the product brand name and a copy of the product label with legible usage instructions;

(B) the product category to which the consumer product belongs;

(C) the applicable product form(s) (listed separately);

(D) for each product form listed in (C), the total sales in California during the calendar year to the nearest pound (exclusive of the container or packaging), and the method used for calculating the California sales;

(E) the weight percent, to the nearest 0.10 percent, of perchloroethylene and methylene chloride in the consumer product.

(3) The information specified in subsection 94513(e)(2) shall be reported for each calendar year by March 1 of the following year. The first report shall be due on March 1, 2001, for calendar year 2000. A new report is due on March 1 of each year thereafter, until March 1, 2011, when the last report is due.

(4) Upon request, the Executive Officer shall make the perchloroethylene information submitted pursuant to this subsection available to publicly owned treatment works in California, in accordance with the procedures for handling of confidential information specified in Title 17, California Code of Regulations, sections 91000-91022.

(A) On or before July 1, 2002, the Executive Officer shall evaluate the information, along with data on influent and effluent levels of perchloroethylene as reported by publicly-owned treatment works personnel and any other relevant information, to determine if it is likely that publicly-owned treatment works are experiencing increased levels of perchloroethylene, relative to 1996 levels, that can be attributed to consumer products which contain perchloroethylene.

(B) If the Executive Officer determines that it is likely that increased perchloroethylene levels at the publicly-owned treatment works are caused by increased levels of perchloroethylene in consumer products subject to this regulation, then the Executive Officer shall, in conjunction with the publicly-owned treatment works and other appropriate parties, implement measures which are feasible, appropriate, and necessary for reducing perchloroethylene levels at the publicly-owned treatment works.

(f) Special Reporting Requirements for Multi-purpose Lubricant and Penetrant products.

(1) On or before March 31, 2012, all responsible parties for Multi-purpose Lubricant and Penetrant products shall report to the Executive Officer the following information for products sold or offered for sale in California:

(A) data regarding product sales and composition for the year 2011, including the information listed in section 94513(a), the entire product label; and

(B) a written update of the research and development efforts undertaken to achieve the 25 percent VOC limits specified in section 94509(a). The written update must include detailed information about the raw materials evaluated for use, maximum incremental reactivity (MIR) values for any VOC or LVP-VOC used or evaluated, the function of the raw material evaluated, hardware used in product reformulation, the testing protocols used, the results of the testing, and the cost of reformulation efforts.

(2) On or before March 31, 2017, all responsible parties for Multi-purpose Lubricant products shall report to the Executive Officer the following information for products sold or offered for sale in California:

(A) data regarding product sales and composition for the year 2016, including the information listed in section 94513(a), the entire product label; and

(B) a written update of the research and development efforts undertaken to achieve the 10 percent VOC limit specified in section 94509(a). The written update must include detailed information about the raw materials evaluated for use, MIR values for any VOC or LVP-VOC used or evaluated, the function of the raw material evaluated, hardware used in product reformulation, the testing protocols used, the results of the testing, and the cost of reformulation efforts.

(g) Special Reporting Requirements for Multi-purpose Solvent and Paint Thinner products

(1) On or before June 30, 2012, all responsible parties for Multi-purpose Solvent and Paint Thinner products shall report to the Executive Officer the following information for products sold or offered for sale in California:

(A) data regarding product sales and composition for the year 2011, including the information listed in section 94513(a), and the entire product label; and

(B) a written update of the research and development efforts undertaken to achieve the 3 percent VOC limits specified in section 94509(a). The written update must include detailed information about the raw materials evaluated for use; maximum incremental reactivity (MIR) values for any VOC or LVP-VOC used or evaluated; the function of the raw material evaluated; the testing protocols used; the results of the testing; and the cost of reformulation efforts.

(h) Special reporting requirements for “Multi-purpose Lubricant” products using the alternate compliance option specified in subsection 94509(r).

(1) The Responsible Party must report annual sales to the Executive Officer no later than March 31. The annual reporting requirement shall sunset on April 1, 2023.

(2) Product formulation must be reported upon initial qualification to comply using 94509(r). Product formulation shall be reported in accordance with subsections 94513(h)(2)(A) through (2)(G).

(A) Any ingredient listed in section 94700 must be reported if it is present in an amount greater than or equal to 0.1 percent by weight of the final “Multi-purpose Lubricant” product formulation.

(B) Any hydrocarbon solvent listed in section 94701 shall be reported as an ingredient if it is present in an amount greater than or equal to 0.1 percent by weight of the final “Multi-purpose Lubricant” product formulation. The hydrocarbon solvent bin number, manufacturer name, and trade name must be specified.

(C) Any ingredient assigned an MIR value in section 94509(r)(5) shall be reported if it is present in an amount greater than or equal to 0.1 percent by weight of the final “Multi-purpose Lubricant” product formulation.

(D) For chemical mixtures not listed in sections 94700, 94701, or 94509(r)(5) each chemical compound in the mixture must be reported separately.

(E) Propellant mixtures must be reported as separate chemical compounds.

(F) If an MIR value other than terpinolene is used for fragrance, the Responsible Party must provide the fragrance ingredients.

(G) For the purpose of this subsection, a safety data sheet (SDS) does not constitute a product's formulation.

(3) The Responsible Party will retain a minimum of three years of production records, as specified in subsection 94509(r)(1)(G), and provide them to the Executive Officer upon request.

(4) The Responsible Party shall provide any other information necessary to determine the PWMIR of the “Multi-purpose Lubricant” product to be tested including the MIR value for each ingredient used to calculate the PWMIR.

(5) Upon written notification from the Executive Officer, the Responsible Party will have 25 working days from the date of mailing to provide to the Executive Officer production records to determine compliance for products complying using the alternate compliance option in subsection 94509(r).

(6) Treatment of Confidential Information.

Information submitted by the Responsible Party pursuant to subsection 94513(h) will be handled in accordance with the procedures specified in Title 17, California Code of Regulations, sections 91000-91022.

Note: Authority cited: [Sections 39600, 39601, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsections (a)-(a)(6), new subsections (a)(7)-(12), repealer and new subsection (b) and relettering, and amendment of subsection (c) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment of section heading and section filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).

4. New subsections (f)-(f)(3) filed 12-23-97; operative 12-23-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 52).
5. Editorial correction of subsection (e)(5)(B) (Register 98, No. 29).
6. Amendment of subsections (e) and (e)(1) and new subsections (g)-(g)(3)(D) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
7. Amendment implementing Mid-Term Measures II filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).
8. Amendment of subsections (d)-(d)(2) and new subsection (d)(3) filed 4-18-2001; operative 5-18-2001 (Register 2001, No. 16).
9. Amendment filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
10. Amendment of subsections (e), (e)(2)(D) and (e)(4) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
11. Amendment of subsection (e)(1)(B) and new subsections (f)-(f)(2)(B) filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).
12. Amendment of subsections (a), (f)(1)(A) and (f)(2)(A) and new subsections (g)-(g)(1)(B) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).
13. Amendment of subsections (f)(2)-(f)(2)(A) filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).
14. Amendment of subsection (c) and new subsections (c)(1)-(2) and (h)-(h)(6) filed 12-31-2018; operative 1-1-2019 pursuant to [Government Code section 11343.4\(b\)\(3\)](#) (Register 2019, No. 1).

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17 CCR § 94514

§ 94514. Variances.

(a) Applications for variances. Any person who cannot comply with the requirements set forth in Section 94509 because of extraordinary reasons beyond the person's reasonable control may apply in writing to the Executive Officer for a variance. The variance application shall set forth:

- (1) the specific grounds upon which the variance is sought;
- (2) the proposed date(s) by which compliance with the provisions of Section 94509 will be achieved;
- (3) a compliance report reasonably detailing the method(s) by which compliance will be achieved; and
- (4) for applicants requesting a variance from the June 1, 1999 55 percent VOC standard for hairspray products, the variance application shall also include a plan describing how the applicant will mitigate the excess VOC emissions that would be emitted during the period of the variance.

(b) Notices and public hearings for variances. Upon receipt of a variance application containing the information required in subsection (a), the Executive Officer shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance from the requirements in Section 94509 is necessary and will be permitted. A hearing shall be initiated no later than 75 days after receipt of a variance application. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 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 30 days prior to the hearing. The notice shall state that the parties may, but need not be, represented by counsel at the hearing. At least 30 days prior to the hearing, the variance application 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.

(c) Treatment of confidential information. Information submitted to the Executive Officer by a variance applicant may be claimed as confidential, and such information shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Sections 91000-91022. The Executive Officer may consider such confidential information in reaching a decision on a variance application.

(d) Necessary findings for granting variances. No variance shall be granted unless all of the following findings are made:

(1) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with Section 94509 would result in extraordinary economic hardship.

(2) 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.

(3) that the compliance report proposed by the applicant can reasonably be implemented, and will achieve compliance as expeditiously as possible.

(e) Variance orders. Any variance order shall specify a final compliance date by which the requirements of Section 94509 will be achieved. Any variance order shall contain a condition that specifies increments of progress necessary to assure timely compliance, and such other conditions that the Executive Officer, in consideration of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

(f) Situations in which variances shall cease to be effective. A variance shall cease to be effective upon failure of the party to whom the variance was granted to comply with any term or condition of the variance.

(g) Modification and revocation of variances. Upon the application of any person, the Executive Officer may review, and for good cause, modify or revoke a variance from requirements of Section 94509 after holding a public hearing in accordance with the provisions of subsection (b).

(h) Special conditions in variance orders for hairspray products.

In imposing conditions in variance orders granted from the June 1, 1999, 55 percent VOC standard for hairspray products, the Executive Officer, in addition to any other conditions that may be imposed, shall require the applicant to mitigate the excess VOC emissions that would be emitted during the period of the variance. If this mitigation requirement would result in an extraordinary economic hardship to the applicant, or if other good cause exists, the Executive Officer may waive all or part of this requirement.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsection (b) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsections (a)(2)-(3) and new subsections (a)(4) and (h) filed 12-23-97; operative 12-23-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 52).

5. Amendment of subsections (b) and (c) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
6. Amendment italicizing descriptive headings filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).
7. Amendment of subsection (h) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).

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17 CCR § 94515

§ 94515. Test Methods.

(a)(1) VOC and GWP compound content determination using ARB Method 310. Testing to determine compliance with the requirements of this article shall be performed using Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds (ROC) in Aerosol Coating Products, adopted September 25, 1997 and as last amended on May 25, 2018, which is incorporated herein by reference. Alternative methods which are shown to accurately determine the concentration of VOCs in a subject product or its emissions may be used upon approval of the Executive Officer.

(2) In sections 3.4, 3.5, and 3.6 of Air Resources Board (ARB) Method 310, a process is specified for the “Initial Determination of VOC Content” and the “Final Determination of VOC Content”. This process is an integral part of testing procedures set forth in ARB Method 310, and is reproduced below:

Sections 3.4, 3.5, and 3.6 of Air Resources Board Method 310

3.4 Initial Determination of VOC Content. The Executive Officer will determine the VOC content pursuant to sections 3.2 and 3.3. Only those components with concentrations equal to or greater than 0.1 percent by weight will be reported.

3.4.1 Using the appropriate formula specified in section 4.0, the Executive Officer will make an initial determination of whether the product meets the applicable VOC standards specified in ARB regulations. If initial results show that the product does not meet the applicable VOC standards, the Executive Officer may perform additional testing to confirm the initial results.

3.4.2 If the results obtained under section 3.4.1 show that the product does not meet the applicable VOC standards, the Executive Officer will request the responsible party to supply product formulation data. The responsible party shall supply the requested information. Information submitted to the ARB Executive Officer may be claimed as confidential; such information will be handled in accordance with the confidentiality procedures specified in [Title 17, CCR, Division 3, Chapter 1, Subchapter 4](#) (Disclosure of Public Records), sections 91000 to 91022.

3.4.3 If the information supplied by the responsible party shows that the product does not meet the applicable VOC standards, then the Executive Officer will take appropriate enforcement action.

3.4.4 If the responsible party fails to provide formulation data as specified in section 3.4.2, the initial determination of VOC content under this section 3.4 shall determine if the product is in compliance with the applicable VOC standards. This determination may be used to establish a violation of ARB regulations.

3.5 Determination of the LVP-VOC status of compounds and mixtures. This section does not apply to antiperspirants and deodorants or aerosol coatings products. Effective January 1, 2015, this section also does not apply to non-aerosol "Multi-purpose Solvent" and "Paint Thinner" products sold, supplied, offered for sale, or manufactured for sale in the South Coast Air Quality Management District. There is no LVP-VOC exemption for these products.

3.5.1 Formulation data. If the vapor pressure is unknown, the following ASTM methods may be used to determine the LVP-VOC status of compounds and mixtures: ASTM D86-01 (August 10, 2001), ASTM D850-00 (December 10, 2000), ASTM D1078-01 (June 10, 2001), ASTM D2879-97 (April 10, 1997), ASTM D2887-01 (May 10, 2001), and ASTM E1719-97 (March 10, 1997).

3.5.2 LVP-VOC status of "compounds" or "mixtures." The Executive Officer will test a sample of the LVP-VOC used in the product formulation to determine the boiling point for a compound or for a mixture. If the boiling point exceeds 216 °C, the compound or mixture is an LVP-VOC. If the boiling point is less than 216 °C, then the weight percent of the mixture which boils above 216 °C is an LVP-VOC. The Executive Officer will use the nearest 1 percent distillation cut that is greater than 216 °C as determined under 3.6.1 to determine the percentage of the mixture qualifying as an LVP-VOC.

3.6 Final Determination of VOC Content. If a product's compliance status is not satisfactorily resolved under sections 3.4 and 3.5, the Executive Officer will conduct further analyses and testing as necessary to verify the formulation data.

3.6.1 If the accuracy of the supplied formulation data is verified and the product sample is determined to meet the applicable VOC standards, then no enforcement action for violation of the VOC standards will be taken.

3.6.2 If the Executive Officer is unable to verify the accuracy of the supplied formulation data, then the Executive Officer will request the responsible party to supply information to explain the discrepancy.

3.6.3 If there exists a discrepancy that cannot be resolved between the results of Method 310 and the supplied formulation data, then the results of Method 310 shall take precedence over the supplied formulation data. The results of Method 310 shall then determine if the product is in compliance with the applicable VOC standards, and may be used to establish a violation of ARB regulations.

(b) VOC content determinations using product formulation and records. Testing to determine compliance with the requirements of this article may also be demonstrated through calculation of the VOC content from records of the amounts of constituents used to make the product, pursuant to the following criteria:

(1) Compliance determination based on these records may not be used unless the responsible party of a consumer product keeps accurate records for each day of production of the amounts and chemical composition of the individual product constituents. These records must be kept for at least three years.

(2) For the purpose of this section 94515(b), the VOC content shall be calculated according to the following equation:

$$\text{VOC Content} = \frac{B - C}{A} \times 100$$

where,

A = total net weight of unit (excluding container and packaging)

B = total weight of all VOCs, as defined in Section 94508(a), per unit

C = total weight of VOCs exempted under Section 94510, per unit

(3) If product records appear to demonstrate compliance with the VOC limits, but these records are contradicted by product testing performed using ARB Method 310, the results of ARB Method 310 shall take precedence over the product records and may be used to establish a violation of the requirements of this article.

(c) Aromatic Compound content determination for Multi-purpose Solvent or Paint Thinner using ARB Method 310. Testing to determine compliance with the requirements of section 94509(p)(1), shall be performed using Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds (ROC) in Aerosol Coating Products, adopted September 25, 1997 and as last amended on May 25, 2018, which is incorporated by reference herein. Alternative test methods that are demonstrated to be equally or more accurate than ARB Method 310 in determining the Aromatic Compound content in a product or its emissions may be used upon the written approval of the Executive Officer.

(d) Aromatic Compound content determinations for Multi-purpose Solvent or Paint Thinner using product formulation and records. Testing to determine compliance with the requirements of section 94509(p)(1), may also be demonstrated through calculation of Aromatic Compound content from records of the amounts of constituents used to make the product pursuant to the following criteria:

(1) Compliance determinations based on these records may not be used unless the responsible party of a Multi-purpose Solvent or Paint Thinner keeps accurate records for each day of production of the amount and chemical composition of the individual product constituents. These records must be kept for at least three years.

(2) For the purposes of this section 94515(d), the Aromatic Compound content shall be calculated according to the following equation:

$$\text{Aromatic Compound Content} = E/D \times 100$$

where,

D = total net weight of unit (excluding container and packaging)

E = total weight of all Aromatic Compounds, as defined in Section 94508(a), per unit

(3) If product records appear to demonstrate compliance with the Aromatic Compound limit, but these records are contradicted by product testing performed using ARB Method 310, the results of ARB Method 310 shall take precedence over the product records and may be used to establish a violation of the requirements of this article.

(e) Determination of liquid or solid. Testing to determine whether a product is a liquid or solid shall be performed using ASTM D4359-90 (May 25, 1990), which is incorporated by reference herein.

(f) Compliance determinations for charcoal lighter material products. Testing to determine compliance with the certification requirements for charcoal lighter material shall be performed using the procedures specified in the South Coast Air Quality Management District Rule 1174 Ignition Method Compliance Certification Protocol (February 28, 1991), which is incorporated by reference herein.

(g) Testing to determine distillation points of petroleum distillate-based charcoal lighter material shall be performed using ASTM D86-01 Aug. 10, 2001, which is incorporated by reference herein.

(h) Fragrance content determinations for personal fragrance products. Testing to determine the percent by weight of fragrance in personal fragrance products shall be performed according to the Association of Official Analytical Chemists (AOAC) Official Method of Analysis No. 932.11, 1990, "Essential Oil in Flavor Extracts and Toilet Preparations, Babcock Method" (AOAC Official Methods of Analysis, 15th Edition, 1990), which is incorporated by reference herein.

(i) No person shall create, alter, falsify, or otherwise modify records in such a way that the records do not accurately reflect the constituents used to manufacture a product, the chemical composition of the individual product, and any other test, processes, or records used in connection with product manufacture.

(j) Effective January 1, 2015, testing to determine compliance with 25 g/L or 0.21 lb/gal VOC standard for nonaerosol "Multi-purpose Solvent" and "Paint Thinner" products sold, supplied, offered for sale, or manufactured for use in the South Coast Air Quality Management District (SCAQMD) shall be determined using ARB Method 310, with final VOC content determined as set forth in section 4.2.4, adopted September 25, 1997 and as last amended on May 25, 2018, which is incorporated herein by reference. As specified in section 3.5 of Method 310, and as reproduced in section 94515(a)(2), determination of LVP-VOC status does not apply because there is no LVP-VOC exemption for these products. Section 4.2.4 is reproduced below:

4.2.4 Effective January 1, 2015, for nonaerosol "Multi-purpose Solvent" and "Paint Thinner" products sold, supplied, offered for sale, or manufactured for use in the South Coast Air Quality Management District (SCAQMD), grams of VOC per liter of material (g/L) shall be calculated using the following equation:

$$\text{g/L VOC} = \text{WM} \times (\text{TV} - \text{H} - \text{EL}) / \text{VM}$$

Where:

WM = weight of the material in grams.

VM = volume of the material in liters.

TV = weight fraction of total volatile material.

H = weight fraction of water.

EL = weight fraction of exempt compounds including the weight fraction of methyl esters with 17 or more carbon atoms in the total volatile material.

(k) Alternate compliance option verification for “Multi-purpose Lubricant” products.

(1) Testing of “Multi-purpose Lubricant” products subject to the provisions of subsection 94509(r) must be performed by the procedures set forth in “Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds (ROC) in Aerosol Coating Products,” (Method 310) adopted September 25, 1997, and as last amended on May 25, 2018, which is incorporated herein by reference. Only ingredients present in amount equal to or greater than 0.1 percent by weight will be reported.

Note: Authority cited: [Sections 39600, 39601, 39607, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39607, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment of subsection (b) and new subsections (c)-(f) filed 12-7-92; operative 1-6-93 (Register 92, No. 50).
3. Amendment of section and Note filed 11-13-97; operative 12-13-97 (Register 97, No. 46).
4. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
5. Amendment of subsection (b)(2) filed 7-17-98; operative 8-16-98 (Register 98, No. 29).
6. Amendment filed 11-16-99; operative 12-16-99 (Register 99, No. 47).
7. Amendment of subsection (a)(2) filed 10-20-2000; operative 11-19-2000 (Register 2000, No. 42).
8. Amendment of subsections (a)(1)-(2), (c) and (e) filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
9. Amendment of subsection (a)(2) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
10. Amendment of subsections (a)(1) and (a)(2) filed 6-18-2009; operative 7-18-2009 (Register 2009, No. 25).

11. Amendment of subsections (a)(1)-(2), new subsections (c)-(d)(3), subsection relettering and amendment of newly designated subsections (e) and (g) filed 9-20-2010; operative 10-20-2010 (Register 2010, No. 39).

12. Amendment of subsections (a)(1), (c) and (d) filed 11-10-2011; operative 12-10-2011 (Register 2011, No. 45).

13. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

14. Amendment of subsections (a)(1)-(b)(1), (c)-(d)(1) and (j) and new subsections (k)-(k)(1) filed 12-31-2018; operative 1-1-2019 pursuant to [Government Code section 11343.4\(b\)\(3\)](#) (Register 2019, No. 1).

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17 CCR § 94516

§ 94516. Severability.

Each part of this article shall be deemed severable, and in the event that any part of this article is held to be invalid, the remainder of this article shall continue in full force and effect.

Note: Authority cited: [Sections 39600, 39601](#) and [41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000](#) and [41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).

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17 CCR § 94517

§ 94517. Federal Enforceability.

For purposes of federal enforceability of this article, the Environmental Protection Agency is not subject to approval determinations made by the Executive Officer under Sections 94511, 94514, and 94515. Within 180 days of a request from a person who has been granted an exemption or variance under Section 94511 or 94514, an exemption or variance meeting the requirements of the Clean Air Act shall be submitted by the Executive Officer to the Environmental Protection Agency for inclusion in the applicable implementation plan approved or promulgated by the Environmental Protection Agency pursuant to Section 110 of the Clean Air Act, [42 U.S.C., Section 7410](#). Prior to submitting an exemption granted under Section 94511 as a revision to the applicable implementation plan, the Executive Officer shall hold a public hearing on the proposed exemption. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Regulatory Notice Register and sent to the Environmental Protection Agency, every person who requests such notice, and to any person or group of persons whom the Executive Officer believes may be interested in the application. Within 30 days of the hearing the Executive Officer shall notify the applicant of the decision in writing as provided in Section 94511(f). The decision may approve, disapprove, or modify an exemption previously granted pursuant to Section 94511.

Note: Authority cited: [Sections 39600, 39601, 39602](#) and [41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39602, 40000](#) and [41712, Health and Safety Code](#).

HISTORY

1. New section filed 9-19-91; operative 10-21-91 (Register 92, No. 12).
2. Amendment filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).

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Article 3. Aerosol Coating Products

17 CCR § 94520

§ 94520. Applicability.

This article shall apply to any person who sells, supplies, offers for sale, applies, or manufactures any aerosol coating product for use in the State of California, except as provided in section 94523. This means that any aerosol coating product sold, supplied, offered for sale, applied, or manufactured for sale in California must comply with the provisions of this article unless specifically exempted as set forth in section 94523.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New Article 3 (sections 94520-94528) and section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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Article 3. Aerosol Coating Products

17 CCR § 94521

§ 94521. Definitions.

(a) For the purposes of this article, the following definitions apply:

(1) “Adhesive” means a product used to bond one surface to another by attachment.

(2) “Aerosol Coating Product” means a pressurized coating product containing “Pigment” or “Resin” that dispenses product ingredients by means of a propellant, and is packaged in a disposable aerosol container for hand-held application, or for use in specialized equipment for ground traffic/marketing applications. An “Aerosol Coating Product” may include other “Coating Solid” ingredients. “Aerosol Coating Product” does not include products subject to the Consumer Products Regulation, sections 94507-94517 or the Antiperspirants and Deodorants Regulation, sections 94500-94506.5.

(3) “Antimicrobial Compound” means any ingredient added to an “Aerosol Coating Product” exclusively to prevent microbial growth or product spoilage.

(4) “Anti-Static Product” means a product that is designed and labeled to eliminate, prevent, or inhibit the accumulation of static electricity.

(5) “Art Fixative or Sealant” means a clear “Aerosol Coating Product,” including art varnish, workable art fixative, and ceramic coating, which is designed and labeled exclusively for application to paintings, pencil, chalk, or pastel drawings, ceramic art pieces, or other closely related art uses, in order to provide a final protective coating or to fix preliminary stages of artwork while providing a workable surface for subsequent revisions.

(6) “ASTM” means ASTM International.

(7) “Auto Body Primer” means an “Aerosol Coating Product” designed and labeled exclusively to be applied to a vehicle body substrate to provide corrosion resistance or to build a repair area to a condition in which, after drying, can be sanded to a smooth surface.

(8) “Automotive Bumper and Trim Product” means an “Aerosol Coating Product,” including adhesion promoters and chip sealants, designed and labeled exclusively to repair and refinish automotive bumpers and automotive plastic trim parts.

- (9) “Aviation Propeller Coating” means an “Aerosol Coating Product” designed and labeled exclusively to provide abrasion resistance and corrosion protection for aircraft propellers.
- (10) “Aviation or Marine Primer” means an “Aerosol Coating Product” designed and labeled exclusively to meet federal specification TT-P-1757.
- (11) “Base Reactive Organic Gas Mixture” (Base ROG Mixture) means the mixture of reactive organic gases utilized in deriving the MIR scale.
- (12) “Belt Dressing” means a product applied to vehicular fan belts, water pump belting, power transmission belting, or industrial and farm machinery belting to prevent slipping, or to extend belt life.
- (13) “Cleaner” means a product designed and labeled primarily to remove soil or other contaminants from surfaces.
- (14) “Clear Coating” means an “Aerosol Coating Product” which is colorless or transparent, containing resins but no pigments except flatting agents, and is designed and labeled to form a transparent or translucent solid film.
- (15) “Coating” means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes.
- (16) “Coating Solid” means any nonvolatile ingredient of an “Aerosol Coating Product.”
- (17) “Commercial Application” means the use of an “Aerosol Coating Product” in the production of goods, or the providing of services for profit, including touch-up and repair.
- (18) “Corrosion Resistant Brass, Bronze, or Copper Coating” means a clear “Aerosol Coating Product” designed and labeled exclusively to prevent tarnish and corrosion of uncoated brass, bronze, or copper metal surfaces.
- (19) “Distributor” means any person to whom an “Aerosol Coating Product” is sold or supplied for the purposes of resale or distribution in commerce, except that manufacturers, retailers, and consumers are not distributors.
- (20) “Dye” means a product containing no resins which is used to color a surface or object without building a film.
- (21) “Electrical/Electronic/Conformal Coating” means an “Aerosol Coating Product” designed and labeled exclusively to coat electrical or electronic components or devices.
- (22) “Engine Coating” means an “Aerosol Coating Product” designed and labeled exclusively to coat engines and their components.

(23) "Exact Match Finish" means an "Aerosol Coating Product" which meets all of the following criteria: (A) the product is labeled with the manufacturer's name for which they were formulated; and (B) the product is labeled with one of the following: 1. the original equipment manufacturer's (O.E.M.) color code number; 2. the color name; or 3. other designation identifying the specific O.E.M. color to the purchaser.

(24) "Exact Match Finish, Automotive" means an "Aerosol Coating Product" which meets the definition of "Exact Match Finish" and is designed and labeled exclusively to exactly match the color of an original, factory-applied automotive coating during the touch-up of automobile finishes. Notwithstanding the foregoing, automotive clear coatings designed and labeled exclusively for use over automotive exact match finishes to replicate the original factory applied finish are "Exact Match Finish, Automotive" products.

(25) "Exact Match Finish, Engine" means an "Aerosol Coating Product" which meets the definition of "Exact Match Finish" and is designed and labeled exclusively to exactly match the color of an original, factory-applied engine coating.

(26) "Exact Match Finish, Industrial" means an "Aerosol Coating Product" which meets the definition of "Exact Match Finish" and is designed and labeled exclusively to exactly match the color of an original, factory-applied industrial coating during the touch-up of manufactured products.

(27) "Executive Officer" means the Executive Officer of the Air Resources Board, or her or his delegate.

(28) "Extender" means an ingredient added to an "Aerosol Coating Product" to increase coating solids.

(29) "Flat Coating" means an "Aerosol Coating Product" which, when fully dry, registers specular gloss less than or equal to 15 on an 85° gloss meter, or less than or equal to 5 on a 60° gloss meter, or which is labeled as a flat coating. A "Flat Coating" that prominently displays on the "Principal Display Panel" that the product is a dual function paint and primer, and is packaged in a single aerosol container, is a "Flat Coating."

(30) "Flatting Agent" means an ingredient added to a coating to reduce the gloss of the coating without adding color to the coating.

(31) "Flexible Coating" means an "Aerosol Coating Product" designed and labeled exclusively to provide a flexible coating to protect surfaces. "Flexible Coating" includes, but is not limited to, rubberized, mastic, or asphaltic products. "Flexible Coating" does not include "Undercoating" as defined in section 94508(a).

(32) "Floral Coating" means an "Aerosol Coating Product" designed and labeled exclusively for use on fresh flowers, dried flowers, or other items in a floral arrangement for the purposes of coloring, preserving or protecting their appearance.

(33) "Fluorescent Coating" means an "Aerosol Coating Product" labeled as a fluorescent coating, which converts absorbed incident light energy into emitted light of a different hue.

(34) “Fragrance” means a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapor pressure not in excess of 2 mm of Hg at 20 °C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor.

(35) “General Coating” means the following aerosol coating products: “Clear Coating,” “Flat Coating,” “Fluorescent Coating,” “Metallic Coating,” “Nonflat Coating,” or “Primer.”

(36) “Glass Coating” means an “Aerosol Coating Product” designed and labeled exclusively for use on glass or other transparent material to create a soft, translucent light effect, or to create a tinted or darkened color while retaining transparency.

(37) “Ground Traffic/Marking Coating” means an “Aerosol Coating Product” designed and labeled exclusively to be applied to dirt, gravel, grass, concrete, asphalt, warehouse floors, or parking lots. Ground Traffic/Marking coatings must be in a container equipped with a valve and sprayhead designed to direct the spray toward the surface when the can is held in an inverted vertical position.

(38) “High Temperature Coating” means an “Aerosol Coating Product” designed and labeled exclusively for application to substrates exposed continuously or intermittently to temperatures above 204 °C (400 °F). “High Temperature Coating” does not include “Engine Coating.”

(39) “Hobby/Model/Craft Coating” means an “Aerosol Coating Product” which is designed and labeled exclusively for hobby applications and is sold in aerosol containers of 6 ounces by weight or less.

(40) “Ingredient” means a component of an “Aerosol Coating Product.”

(41) “Ink” means a fluid or viscous substance used in the printing industry to produce letters, symbols or illustrations, but not to coat an entire surface.

(42) “Label” means any written, printed, or graphic matter affixed to, applied to, attached to, blown into, formed, molded into, embossed on, or appearing upon any consumer product or consumer product package, for purposes of branding, identifying, or giving information with respect to the product or to the contents of the package.

(43) “Layout Fluid” (or toolmaker’s ink) means an “Aerosol Coating Product” designed and labeled exclusively to be sprayed on metal, glass or plastic, to provide a glare-free surface on which to scribe designs, patterns or engineering guide lines prior to shaping the piece.

(44) “Leather Preservative or Cleaner” means a leather treatment material applied exclusively to clean or preserve leather.

(45) “Lubricant” means a product that reduces friction, heat, noise, or wear between moving parts, or loosens rusted or immovable parts or mechanisms.

(46) “Manufacturer” means any person who imports, manufactures, assembles, produces, packages, repackages, or relabels a consumer product.

(47) “Marine Spar Varnish” means an “Aerosol Coating Product” designed and labeled exclusively to provide a protective sealant for marine wood products.

(48) “Maskant” means a product applied directly to a component to protect surface areas from damage during fabrication, inspection, or shipment and must not leave a residue when removed.

(49) “Maximum Incremental Reactivity” (MIR) means the maximum change in weight of ozone formed by adding a compound to the “Base ROG Mixture” per weight of compound added, expressed to hundredths of a gram (g O₃/g ROC). MIR values for individual compounds and hydrocarbon solvents are specified in [sections 94700 and 94701, Title 17, California Code of Regulations](#).

(50) “Metallic Coating” means an “Aerosol Coating Product” which contains at least 0.5 percent by weight metallic pigment in the formulation, including propellant, and is labeled as “metallic,” or with the name of a specific metallic finish such as “gold,” “silver,” or “bronze.” A “Metallic Coating” that prominently displays on the “Principal Display Panel” that the product is a dual function paint and primer, and is packaged in a single aerosol container, is a “Metallic Coating.”

(51) “Mold Release Coating” means an “Aerosol Coating Product” designed and labeled exclusively to be applied to molds to prevent products from sticking to the surfaces of the mold.

(52) “Multi-component Kit” means an “Aerosol Coating Product” system which requires the application of more than one component (for example, foundation coat and top coat), where both components are sold together in one package.

(53) “Nonflat Coating” means an “Aerosol Coating Product” which, when fully dry, registers a specular gloss greater than 15 on an 85° gloss meter or greater than 5 on a 60° gloss meter, or which is labeled as a nonflat coating. A “Nonflat Coating” that prominently displays on the “Principal Display Panel” that the product is a dual function paint and primer, and is packaged in a single aerosol container, is a “Nonflat Coating.”

(54) “Ozone” means a colorless gas with a pungent odor, having the molecular form O₃.

(55) “Photograph Coating” means an “Aerosol Coating Product” designed and labeled exclusively to be applied to finished photographs to allow corrective retouching, protection of the image, changes in gloss level, or to cover fingerprints.

(56) “Pigment” means a “Coating Solid” of either natural or synthetic insoluble material added to a coating to provide color, opacity, or corrosion inhibition to a coating film.

(57) “Plasticizer” means an ingredient added to an “Aerosol Coating Product” to aid in flexibility.

(58) "Pleasure Craft" means privately owned vessels used for noncommercial purposes.

(59) "Pleasure Craft Finish Primer/Surfacer/Undercoater" means an "Aerosol Coating Product" designed and labeled exclusively to be applied prior to the application of a "Pleasure Craft Topcoat" for the purpose of corrosion resistance or adhesion of the topcoat, and which promotes a uniform surface by filling in surface imperfections.

(60) "Pleasure Craft Topcoat" means an "Aerosol Coating Product" designed and labeled exclusively to be applied to a "Pleasure Craft" as a final coat above the waterline and below the waterline when stored out of water.

(61) "Polyolefin Adhesion Promoter" means an "Aerosol Coating Product" designed and labeled exclusively to be applied to a polyolefin or polyolefin copolymer surface of vehicular body parts, bumpers, or trim parts to provide a bond between the surface and subsequent topcoats.

(62) "Primer" means an "Aerosol Coating Product" labeled as a primer, which is designed and labeled to be applied to a surface to provide a bond between that surface and subsequent coats.

(63) "Principal Display Panel or Panels" means that part, or those parts of a label that are so designed as to most likely be displayed, presented, shown or examined under normal and customary conditions of display or purchase. Whenever a principal display panel appears more than once, all requirements pertaining to the "Principal Display Panel" shall pertain to all such "Principal Display Panels."

(64) "Product-Weighted MIR" (PWMIR) means the sum of all weighted-MIR for all ingredients in an "Aerosol Coating Product." The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging) and calculated according to the following equations:

(a) Weighted MIR (Wtd-MIR) ingredient = MIX x Weight fraction ingredient,

and,

(b) Product Weighted MIR = (Wtd-MIR)₁ + (Wtd-MIR)₂ + ... + (Wtd-MIR)_n

where,

MIR = ingredient MIR, as specified in section 94522(i);

Wtd-MIR = MIR of each ingredient in a product multiplied by the weight fraction of that ingredient, as shown in (a);

1,2,3,...,n = each ingredient in the product up to the total n ingredients in the product.

(65) "Propellant" means a liquefied or compressed gas that is used in whole or in part, to expel a liquid or any other material from the same self-pressurized container or from a separate container.

(66) “Reactivity Limit” means the maximum ozone forming potential of ingredients (excluding container and packaging) allowed in an “Aerosol Coating Product,” expressed as the PWMIR.

(67) “Reactive Organic Compound (ROC)” means any compound containing at least one atom of carbon and that has the potential, once emitted, to contribute to ozone formation in the troposphere.

(68) “Resin” means a “Coating Solid” that comprises the film-forming ingredients in an “Aerosol Coating Product.” Examples of resin ingredients include acrylic, alkyd, enamel, epoxy, lacquer, polyurethane, polyvinyl chloride, shellac, silicone, and polystyrene.

(69) “Responsible Party” means the company, firm, or establishment which is listed on the product's label. If the label lists two companies, firms or establishments, the responsible party is the party which the product was “manufactured for” or “distributed by”, as noted on the label.

(70) “Retailer” means any person who sells, supplies, or offers aerosol coating products for sale directly to consumers.

(71) “Retail Outlet” means any establishment where consumer products are sold, supplied, or offered for sale, directly to consumers.

(72) “Rust Converter” means an “Aerosol Coating Product” designed and labeled exclusively to convert rust to an inert material and which contains a minimum acid content of 1.0 percent by weight, and a maximum coating solids content of 6.0 percent by weight.

(73) “Specialty Coating” means any “Aerosol Coating Product” that is not a “General Coating” unless specifically exempted as specified in section 94523. An aerosol coating that does not meet all the criteria for a specific “Specialty Coating” or an aerosol coating that is not defined in this section 94521(a) is a “General Coating.”

(74) “Shellac Sealer” means a clear or pigmented “Aerosol Coating Product” formulated solely with the resinous secretion of the lac beetle (*Laccifer lacca*), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

(75) “Slip-resistant/Non-slip Grip Coating” means an “Aerosol Coating Product” (A) designed and labeled exclusively as a slip-resistant coating, which is formulated with grit and used as a safety coating; or (B) labeled exclusively as a non-slip grip coating designed to reduce or prevent slipping.

(76) “Spatter/Multicolor/Stucco Coating” means an “Aerosol Coating Product” (A) labeled exclusively as a spatter coating which produces spots, globules, or spatters of individual or contrasting colors appear on or within the surface of a contrasting or similar background; or (B) labeled exclusively as a multicolor coating; or (C) labeled exclusively as a stucco coating that is made from a mixture of Portland cement, sand, and lime.

(77) “Two Component Coating” means an “Aerosol Coating Product” packaged in an aerosol container with a separate integrated chamber for the hardener or activator.

(78) “Uniform Finish Coating” means an “Aerosol Coating Product” designed and labeled exclusively for application to the area adjacent to a spot repair for the purpose of blending the spot repair's color or clear coating to match the appearance of an adjacent area's existing coating. For the purpose of this article, “Spot Repair” means repair of an area of less than 1 square foot (929 square centimeters). “Uniform Finish Coating” includes products labeled as edge blenders.

(79) “Upper-Limit Kinetic Reactivity” (ULKR) means the maximum percentage of the emitted ROC which has reacted. For this article, the ULKR is one hundred percent and is used to calculate the ULMIR.

(80) “Upper-Limit Mechanistic Reactivity” (ULMR) means the maximum gram(s) of ozone formed per gram of ROC reacting. The ULMR is used to calculate the ULMIR.

(81) “Upper-Limit MIR” (ULMIR) means the upper-limit kinetic reactivity (ULKR) multiplied by the upper-limit mechanistic reactivity (ULMR), as calculated using the following equation:

$$\text{ULMIR} = \text{Upper Limit KR} \times \text{Upper Limit MR.}$$

The units for ULMIR are g O₃/g ROC.

(82) “Vinyl/Fabric/Leather/Plastic Coating” means an “Aerosol Coating Product” (A) designed and labeled exclusively to coat vinyl, fabric, leather, or plastic substrates; or (B) designed and labeled exclusively to repel water from fabric or leather substrates. “Vinyl/Fabric/Leather/Plastic Coating” does not include “Fabric Protectant” as defined in section 94508(a).

(83) “Webbing/Veiling Coating” means an “Aerosol Coating Product” designed and labeled exclusively to provide a stranded or spider webbed appearance when applied.

(84) “Weight Fraction” means the weight of an ingredient divided by the total net weight of the product, expressed to thousandths of a gram of ingredient per gram of product (excluding container and packaging). The weight fraction is calculated according to the following equation:

$$\text{Weight Fraction} = \text{Weight of the ingredient} / \text{Total product net weight (excluding container and packaging).}$$

(85) “Weld-Through Primer” means an “Aerosol Coating Product” designed and labeled exclusively to provide a bridging or conducting effect for corrosion protection following welding.

(86) “Wood Stain Coating” means an “Aerosol Coating Product” which is designed and labeled exclusively as a wood stain and is used to change the color of a wood surface but not conceal the grain pattern or texture.

(87) “Wood Touch-Up/Repair/Restoration Coating” means an “Aerosol Coating Product” designed and labeled exclusively to provide an exact color or sheen match on finished wood products.

(88) “Working Day” means any day between Monday through Friday, inclusive, except for days that are federal holidays.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Repealer of subsection (a)(62) and new subsections (a)(62)-(a)(62)(B) filed 2-29-96; operative 3-30-96 (Register 96, No. 9).
3. Amendment of subsection (a)(62)(B) filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
4. Amendment of subsections (a)(20), (a)(22), (a)(24) and (a)(25), new subsection (a)(49), and amendment of subsections (a)(62)(A)-(B) filed 5-25-99; operative 6-24-99 (Register 99, No. 22).
5. New subsections (a)(11), (a)(35), (a)(44), (a)(49), (a)(55), (a)(57), (a)(59)-(60), (a)(69)-(71) and (a)(75) and subsection renumbering filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
6. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94522

§ 94522. Reactivity Limits and Requirements.

(a) *Reactivity Limits.*

(1) Except as provided in section 94523, any “Aerosol Coating Product” shall comply with the applicable General Coating limit specified in section 94522(a)(2) unless the “Aerosol Coating Product” meets all the requirements for the applicable Specialty Coating that is defined in section 94521. In such cases the Specialty Coating product shall comply with the applicable Specialty Coating limit specified in section 94522(a)(2).

(2) Except as provided in [sections 94523 \(Exemptions\)](#) and [94525 \(Variances\)](#), Title 17, California Code of Regulations, no person shall sell, supply, offer for sale, apply, or manufacture for use in California, any “Aerosol Coating Product” which, at the time of sale, use, or manufacture exceeds the limits specified in the following Table of Reactivity Limits after the specified effective date.

Table of Reactivity Limits

Product-Weighted MIR in Grams Ozone per Gram Product

(g O₃/g product)

Aerosol Coating Category

General Coatings	06/01/2002	01/01/2017
Clear Coatings	1.50	0.85
Flat Paint Coating	1.20	0.80
Fluorescent Coating	1.75	1.30
Metallic Coating	1.90	1.25
Nonflat Coating	1.40	0.95
Primer	1.20	0.70

Specialty Coatings (A)	01/01/2003	01/01/2017
Auto Body Primer	1.55	0.95
Electrical/Electronic/Conformal Coating		2.00
Exact Match Finish:		
Automotive	1.50	0.95
Engine	1.70	0.95
Industrial	2.05	1.20
Flexible Coating		1.60
Ground Traffic/Marking Coating	1.20	0.85
Mold Release Coating		1.10
Two Component Coating		1.20
Uniform Finish Coating		1.30
 Specialty Coatings (B)	 01/01/2003	 01/01/2015
Art Fixative or Sealant	1.80	1.75
Automotive Bumper and Trim Product	1.75	1.70
Aviation or Marine Primer	2.00	1.25
Aviation Propeller Coating	2.50	1.40
Corrosion Resistant Brass, Bronze, or Copper Coating	1.80	1.80
Floral Coating	1.70	0.85
Glass Coating	1.40	1.35
High Temperature Coating	1.85	1.85
Hobby/Model/Craft Coating:	2.70	1.60
Marine Spar Varnish	0.90	0.90
Photograph Coating	1.00	0.75
Pleasure Craft Finish Primer/		
Surfacer/Undercoater	1.05	0.90

Pleasure Craft Topcoat	0.60	0.60
Polyolefin Adhesion Promoter	2.50	2.50
Rust Converter		1.10
Shellac Sealer	1.00	1.00
Slip-resistant/Non-slip Grip		
Coating	2.45	2.10
Spatter/Multicolor/Stucco Coating	1.05	1.05
Vinyl/Fabric/Leather/Plastic Coating	1.55	1.45
Webbing/Veiling Coating	0.85	0.75
Weld-Through Primer	1.00	1.00
Wood Stain Coating	1.40	0.90
Wood Touch-Up/Repair		
/Restoration Coating	1.50	1.45

(b) If an “Aerosol Coating Product” is subject to both a General Coating limit and a Specialty Coating limit, as listed in the Table of Reactivity Limits in section 94522(a)(2), and the product meets all the criteria of the applicable Specialty Coating category as defined in section 94521, then the Specialty Coating limit shall apply instead of the General Coating limit.

(c) The Alternative Control Plan Regulation (sections 94540-94555) does not apply to aerosol coating products.

(d) *Sell-Through of Products*

(1) Notwithstanding the provisions of section 94522(a)(2), an aerosol coating product manufactured prior to each of the effective dates specified for that product in the Table of Reactivity Limits may be sold, supplied, offered for sale, or applied for up to three years after each of the specified effective dates. This subsection does not apply to:

(A) any aerosol coating product that does not display on the product container or package the date on which the product was manufactured, or a code indicating such date, or

(B) any aerosol coating product on which the manufacturer has used a code indicating the date of manufacture that is different than the code specified in section 94524(b)(2)(B), but an explanation of the code has not been filed with the ARB Executive Officer by the deadlines specified in section 94524(b)(2)(E)1., or section 94524(b)(2)(E)2., or

(C) Products contained in multi-unit packages, as specified below:

1. Subsection (d)(1) does not apply to any individual aerosol coating product unit contained within a multi-unit package that is produced or assembled after January 1, 2015, where the multi-unit package does not display the date(s) or date-code(s) of the individual product units, or display the date of assembly, such that the displayed information is not readily observable without irreversibly disassembling any portion of the container or packaging.

2. For the purposes of this section, “date of assembly” means the date that the individual product units are assembled into the finished multi-unit package.

3. For multi-unit packages that display the “date of assembly” instead of the date(s) or date-code(s) of the individual product units, the “date of assembly” shall be the “date of manufacture” for all of the product units contained within the multi-unit package. In other words, all of the product units shall be deemed to have been manufactured on the date these units are assembled into the multi-unit package, even if the individual product units show different date(s) or date-code(s).

(2) *Notification for products sold during the sell-through period.* Any person who sells or supplies an aerosol coating product subject to the Table of Reactivity Limits in section 94522(a) must notify the purchaser of the product in writing of the date on which the sell-through period for that product will end, provided, however, that this notification must be given only if all of the following conditions are met:

(A) the product is being sold or supplied to a distributor or retailer;

(B) the sell-through period for the product will expire 6 months or less from the date the product is sold or supplied;

(C) the product does not comply with the lowest Reactivity Limit that applies on the date the sell-through period ends.

(e) *Prohibition on use of Methylene Chloride, Perchloroethylene, or Trichloroethylene.*

(1) No person shall sell, supply, offer for sale, apply, or manufacture for use in California any “Aerosol Coating Product” which contains methylene chloride, perchloroethylene, or trichloroethylene.

(2) The requirements of section 94522(e)(1) shall not apply to any “Aerosol Coating Product” containing methylene chloride, perchloroethylene, or trichloroethylene that is present in a combined amount equal to or less than 0.01% by weight of the product.

(f) *Prohibition on use of Ozone Depleting Substances.*

(1) No person shall sell, supply, offer for sale, apply, or manufacture for use in California any “Aerosol Coating Product” which contains an ozone depleting substance identified by the United States Environmental Protection Agency in the Code of Federal Regulations, 40 CFR Part 82, Subpart A, under Appendices A and B, July 1, 1998.

(2) The requirements of section 94522(f)(1) shall not apply to any aerosol coating product containing an ozone depleting substance as identified in section 94522(f)(1) that is present in a combined amount equal to or less than 0.01% by weight of the product.

(g) *Multi-component Kits.*

No person shall sell, supply, offer for sale, apply, or manufacture for use in California any “Multi-component Kit,” as defined in section 94521, in which the Kit PWMIR is greater than the Total Reactivity Limit. The Total Reactivity Limit represents the limit that would be allowed in the “Multi-component Kit” if each component product in the kit had separately met the applicable Reactivity Limit. The Kit PWMIR and Total Reactivity Limit are calculated as in equations (1), (2), and (3) below:

$$(1) \text{ Kit PWMIR} = (\text{PWMIR}_{(1)} \times W_1) + (\text{PWMIR}_{(2)} \times W_2) + \dots + (\text{PWMIR}_{(n)} \times W_n)$$

$$(2) \text{ Total Reactivity Limit} = (\text{RL}_1 \times W_1) + (\text{RL}_2 \times W_2) + \dots + (\text{RL}_n \times W_n)$$

$$(3) \text{ Kit PWMIR} \leq \text{Total Reactivity Limit}$$

Where:

W = the weight of the product contents (excluding container)

RL = the Reactivity Limit specified in section 94522(a)

Subscript 1 denotes the first component product in the kit

Subscript 2 denotes the second component product in the kit

Subscript n denotes any additional component product

(h) *Products Assembled by Adding Bulk Paint to Aerosol Containers of Propellant.* No person shall sell, supply, offer for sale, apply, or manufacture for use in the State of California any “Aerosol Coating Product” assembled by adding bulk paint to aerosol containers of “Propellant,” unless such products comply with the applicable reactivity limits specified in section 94522(a).

(i) *Assignment of Maximum Incremental Reactivity (MIR) Values.*

(1) All ingredients in an amount equal to or exceeding 0.1 percent by weight shall be used to calculate the PWMIR.

(2) In order to calculate the PWMIR of an “Aerosol Coating Product” as specified in section 94521(a)(64), the MIR values of product ingredients are assigned as follows:

(A) Any ingredient which does not contain carbon is assigned a MIR value of 0.0.

(B) “Coating Solid,” “Extender,” and “Plasticizer” ingredients are assigned a MIR value of 0.0. “Antimicrobial Compound” ingredients in an amount of up to 0.25 percent by weight and “Fragrance” in an amount of up to 0.25 percent by weight are assigned a MIR value of 0.0.

(C) For any ROC not covered under (2)(A) and (2)(B) of this subsection (i), each ROC is assigned the MIR value for that ROC as set forth in [Subchapter 8.6, Article 1, section 94700](#) or [94701, Title 17, California Code of Regulations](#).

(D) If a ROC is not listed in [section 94700, Title 17, California Code of Regulations](#), but an isomer(s) of the ROC is listed, then the MIR value for the isomer shall be used. If more than one isomer is listed, the listed MIR value for the isomer with the highest MIR value shall be used.

(E) Except as provided in subsection (i)(4), if a ROC or its isomer(s) is not listed in [section 94700](#) or an aliphatic hydrocarbon solvent is not listed in [section 94701, Title 17, California Code of Regulations](#), the MIR value for 1,2,3-trimethyl benzene shall be used to determine the weighted MIR of the ROC to calculate the PWMIR.

(F) “Fragrance” present in an aerosol coating in an amount exceeding 0.25 percent by weight shall use the MIR value for terpinolene to determine the weighted MIR of the “Fragrance” to calculate the PWMIR.

(3) (A) 1. For products manufactured before January 1, 2015: The MIR values dated July 18, 2001, shall be used to calculate the PWMIR for aerosol coating products.

2. For products manufactured on or after January 1, 2015: The MIR values dated October 2, 2010, shall be used to calculate the PWMIR for aerosol coating products, and these MIR values shall not be changed until at least January 1, 2020.

(B) If a new ROC is added to [section 94700](#) or [94701](#), the MIR value for the new ROC shall be used instead of the value specified in section 94522(i)(2)(D) or (E) to calculate the PWMIR after the effective date of the MIR value.

(4) The MIR value for any aromatic hydrocarbon solvent with a boiling range different from the ranges specified in section 94701(b) shall be assigned as follows:

(A) If the solvent dry point is lower than or equal to 420 °F, the MIR value specified in section 94701(b) for bin 23 shall be used.

(B) If the solvent initial boiling point is higher than 420 °F, the MIR value specified in section 94701(b) for bin 24 shall be used.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Amendment of subsection (b) filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
3. Amendment of subsection (a)(1) filed 8-24-98; operative 8-24-98 pursuant to [Government Code section 11343.4\(d\)](#) (Register 98, No. 35).
4. Amendment filed 5-25-99; operative 6-24-99 (Register 99, No. 22).
5. Amendment of section heading and section filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
6. Amendment of section heading and section filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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Title 17. Public Health

Division 3. Air Resources

Chapter 1. Air Resources Board

Subchapter 8.5. Consumer Products

Article 3. Aerosol Coating Products

17 CCR § 94523

§ 94523. Exemptions.

(a) This article does not apply to products that meet the definitions for “Adhesive,” “Anti-Static Product,” Belt Dressing,” “Cleaner,” “Dye,” “Ink,” “Layout Fluid,” “Leather Preservative or Cleaner,” “Lubricant,” or Maskant,” cosmetics or any products used on the human body, and products applied to vehicle tires. This article also does not apply to “Rubber/Vinyl Protectant,” “Undercoating,” or “Fabric Protectant” as defined in section 94508(a).

(b) This article shall not apply to any aerosol coating product manufactured in California for shipment and use outside of California.

(c) The provisions of this article shall not apply to a manufacturer, distributor, or responsible party who sells, supplies, or offers for sale in California an aerosol coating product that does not comply with the limits specified in section 94522(a)(2), as long as the manufacturer, distributor, or responsible party can demonstrate both that the aerosol coating product is intended for shipment and use outside of California, and that the manufacturer, distributor, or responsible party has taken reasonable prudent precautions to assure that the aerosol coating product is not distributed to California. This subsection (c) does not apply to aerosol coating products that are sold, supplied, or offered for sale by any person to retail outlets in California.

(d) The requirements in section 94522(a)(2) prohibiting the application of aerosol coating products that exceed the limits specified in section 94522(a)(2) shall apply only to commercial application of aerosol coating products.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Amendment of subsections (c) and (d) filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
3. Redesignation and amendment of subsection (a) as subsection (a)(1) and new subsection (a)(2) filed 11-8-2007; operative 12-8-2007 (Register 2007, No. 45).
4. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94523, 17 CA ADC § 94523

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17 CCR § 94524

§ 94524. Administrative Requirements.

(a) *Most Restrictive Limit.*

Except as otherwise provided in section 94522(b), if anywhere on the container of any aerosol coating product subject to the specified limits in section 94522(a)(2), or on any sticker or label affixed thereto, or in any sales or advertising literature, any representation is made that the product may be used as, or is suitable for use as a product for which a lower limit is specified, then the lowest applicable limit shall apply.

(b) *Labeling Requirements.*

(1) Each manufacturer of an “Aerosol Coating Product” subject to this article shall clearly display the following information on each product container which is manufactured on or after the earliest effective date for the applicable Reactivity Limit for an aerosol coating category.

(A) the applicable Reactivity Limit for the product that is specified in section 94522(a); and

(B) the aerosol coating category as defined in section 94521, or an abbreviation of the coating category.

(2) *Product Dating Requirements*

(A) In addition to the labeling requirements specified in section 94524(b)(1), each manufacturer of an aerosol coating product subject to section 94522 shall clearly display on each aerosol coating product container or package, the day, month, and year on which the product was manufactured, or a code indicating such date.

Codes that represent a sequential batch number or that otherwise cannot be attributed to a specific day, month, and year, do not satisfy this requirement.

(B) A manufacturer who uses the following code to indicate the date of manufacture shall not be subject to the requirements of section 94524(b)(2)(E), if the code is represented separately from other codes on the product container so that it is easily recognizable:

YY DDD = year year day day day

Where: “YY” = two digits representing the year in which the product was manufactured, and

“DDD” = three digits representing the day of the year on which the product was manufactured, with “001” representing the first day of the year, “002” representing the second day of the year, and so forth (i.e. the “Julian date”).

(C) The date of manufacture or code indicating the date of manufacture shall be displayed on each aerosol coating product container or package no later than twelve months prior to the effective date of the applicable limit specified in section 94522(a)(2).

(D) Products Sold in Multi-unit Packages.

1. Products sold, supplied, or offered for sale in multi-unit packages are not required to comply with subsection (b)(2)(E)3.
2. If a multi-unit package does not comply with subsection (b)(2)(E)3., the “sell-through” provisions of section 94522(d) shall not apply to the individual product units contained within the multi-unit package. In other words, if any multi-unit package produced or assembled after January 1, 2015, does not display the date(s) or date-code(s) of the product units, such that the displayed information is readily observable without irreversibly disassembling any portion of the container or packaging, the individual product units shall be subject to the Reactivity Limit in effect when the multi-unit package is sold, supplied, or offered for sale, regardless of the date on which the product units were manufactured.
3. A multi-unit package may comply with subsection (b)(2)(E)3. by displaying the date of assembly instead of the date(s) or date-code(s) of the individual product units, so long as the date of assembly is readily observable without irreversibly disassembling any portion of the container or packaging. The “date of assembly” means the date that the individual product units are assembled into the finished multi-unit package. If the date of assembly is displayed instead of the individual date(s) or date-code(s), the “date of assembly” shall be the “date of manufacture” for all of the product units contained within the multi-unit package. In other words, all of the product units shall be deemed to have been manufactured on the date these units are assembled into the multi-unit package, even if the individual product units show different date(s) or date-code(s), and the “date of assembly” shall be “date of manufacture” of each product unit for the purposes of applying the “sell-through” provisions of section 94522(d).

(E) Additional Product Dating Requirements

1. If a manufacturer uses a code indicating the date of manufacture, for any aerosol coating product subject to section 94522 an explanation of the code must be filed with the Executive Officer of the ARB no later than twelve months prior to use of the code or abbreviation. Thereafter, manufacturers using a code must file an explanation of the code with the Executive Officer on an annual basis, beginning January 1, 2015.

The explanation of the code must be received by the Executive Officer on or before January 31st of each year, with the first explanation due on or before January 31, 2015.

2. If a manufacturer changes any code indicating the date of manufacture for any aerosol coating product subject to subsection (b)(2)(E)1., an explanation of the modified code must be received by the Executive Officer before any products displaying the modified code are sold, supplied, or offered for sale in California.

3. Except as provided (b)(2)(D), the information required in section 94524(b)(1) and (b)(2), shall be displayed on the product container such that it is readily observable without removing or disassembling any portion of the product container or packaging. For the purposes of this subsection, information may be displayed on the bottom of a container as long as it is clearly legible without removing any product packaging.

4. No person shall erase, alter, deface, or otherwise remove or make illegible any date or code indicating the date of manufacture from any regulated product container without the express authorization of the manufacturer.

5. Codes indicating the date of manufacture are public information and shall not be claimed as confidential.

(c) Reporting Requirements.

(1) Any Responsible Party for an aerosol coating product subject to this article which is sold, supplied, or offered for sale in California, must supply the Executive Officer with the following information within 90 days of the earliest effective date for the applicable Reactivity Limit for an aerosol coating category: the company name, mailing address, contact person, email address, and the telephone number of the contact person.

For a Responsible Party who does not manufacture their own aerosol coating products, the Responsible Party shall also supply the information specified in this subsection (c)(1) for those manufacturers which produce products for the Responsible Party.

The Responsible Party shall also notify the Executive Officer within 90 days of any change in the information supplied to the Executive Officer pursuant to this subsection (c)(1).

(2) Upon 90 days written notice, each manufacturer or Responsible Party subject to this article shall submit to the Executive Officer a written report with all of the following information for each product they manufacture under their name or another company's name:

(A) the brand name of the product;

(B) a copy of the product label;

(C) the owner of the trademark or brand names;

(D) the product category as defined in section 94521;

(E) the annual California sales in pounds per year and the method used to calculate California annual sales;

(F) the weight fraction of each ROC present in amount greater than or equal to 0.1 percent by weight along with its corresponding MIR value as specified in sections 94700 or 94701;

(G) the weight fraction of ingredients listed in 94522(i)(2)(A) and 94522(i)(2)(B);

(H) the weight fraction of any other ingredient that is present in an amount greater than or equal to 0.1 percent by weight.

(I) any other information necessary to determine the emissions or the PWMIR of an “Aerosol Coating Product.”

(d) *Treatment of Confidential Information.*

All information submitted by manufacturers pursuant to section 94524 and 94526 shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, sections 91000-91022.

Note: Authority cited: [Sections 39600, 39601, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Redesignation of former subsection (c)(5) to new subsection (d) and new subsections (e)-(e)(4)(B) filed 11-18-97; operative 11-18-97 pursuant to [Government Code section 11343.4\(d\)](#) (Register 97, No. 47).
3. Repealer of subsections (c)(2)-(c)(2)(B)4., subsection renumbering, and amendment of subsections (d) and (e) filed 5-25-99; operative 6-24-99 (Register 99, No. 22).
4. Amendment filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
5. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94525

§ 94525. Variances.

(a) Any person who cannot comply with the requirements set forth in section 94522, because of extraordinary reasons beyond the person's reasonable control may apply in writing to the Executive Officer for a variance. The variance application shall set forth:

- (1) the specific grounds upon which the variance is sought;
- (2) the proposed date(s) by which compliance with the provisions of section 94522 will be achieved, and
- (3) a compliance report reasonably detailing the method(s) by which compliance will be achieved.

(b) Upon receipt of a variance application containing the information required in subsection (a), the Executive Officer shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance from the requirements in section 94522 is necessary and will be permitted. A hearing shall be initiated no later than 75 working days after receipt of a variance application. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 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 30 days prior to the hearing. The notice shall state that the parties may, but need not be, represented by counsel at the hearing. At least 30 days prior to the hearing, the variance application shall be made available to the public for inspection. Information submitted to the Executive Officer by a variance applicant may be claimed as confidential, and such information shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, sections 91000-91022. The Executive Officer may consider such confidential information in reaching a decision on a variance application. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.

(c) No variance shall be granted unless all of the following findings are made:

- (1) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with section 94522 would result in extraordinary economic hardship.
- (2) 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.

(3) that the compliance report proposed by the applicant can reasonably be implemented, and will achieve compliance as expeditiously as possible.

(d) Any variance order shall specify a final compliance date by which the requirements of section 94522 will be achieved. Any variance order shall contain a condition that specifies increments of progress necessary to assure timely compliance, and such other conditions that the Executive Officer, in consideration of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

(e) A variance shall cease to be effective upon failure of the party to whom the variance was granted to comply with any term or condition of the variance.

(f) Upon the application of any person, the Executive Officer may review, and for good cause, modify or revoke a variance from the requirements of section 94522 after holding a public hearing in accordance with the provisions of subsection 94525(b).

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Amendment of subsections (a), (a)(2), (b), (c)(1), (d) and (f) filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94526

§ 94526. Test Methods and Compliance Verification.

(a) *Test Methods*

Compliance with the requirements of this article shall be determined by using the following test methods, which are incorporated by reference herein. Alternative test methods which are shown to accurately determine the PWMIR, ingredient name and weight percent of each ingredient, metal content, specular gloss, or acid content may also be used after approval in writing by the Executive Officer:

(1) The ingredients and the amount of each ingredient of all aerosol coating products subject to the provisions of this article shall be determined by the procedures set forth in “Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds (ROC) in Aerosol Coating Products,” (Method 310) adopted September 25, 1997 and as last amended on August 1, 2014 which is incorporated herein by reference. Only ingredients present in amount equal to or greater than 0.1 percent by weight will be reported.

(b) *Compliance Verification*

(1) Upon written notification from the Executive Officer, the Responsible Party shall have 25 working days from the date of mailing to provide to the Executive Officer the exact product formulation and any other information necessary to determine compliance for products selected for testing:

(A) For the purpose of this subsection, formulation means the exact weight fraction of all ingredients including: each ROC, water, “Antimicrobial Compound,” “Coating Solid,” “Extender,” “Plasticizer,” and any compounds assigned a MIR value of zero as specified in section 94522(i).

1. Each ROC must be reported as an ingredient if it is present in an amount greater than or equal to 0.1 percent by weight of the final aerosol coating formulation. If an individual ROC is present in an amount less than 0.1 percent by weight, then it does not need to be reported as an ingredient.

2. Each hydrocarbon solvent must be reported as an ingredient if it is present in an amount greater than or equal to 0.1 percent by weight of the final aerosol coating formulation. The solvent Bin number must be specified.

3. Any ROC constituent of any raw material must be reported as an ingredient if it is present in an amount greater than or equal to 0.1 percent by weight of the final aerosol coating formulation. This means, for example, that any ROC included in a resin or other raw material must be reported as part of the formulation.

4. Hydrocarbon propellant ingredients must be specified and reported separately. In other words, the portion of the hydrocarbon propellant that is propane, butane, isobutane, or any other ROC must be reported as an ingredient.

5. A material safety data sheet (MSDS) does not constitute a product's formulation.

(B) the product category as defined in section 94521(a);

(C) the PWMIR of the "Aerosol Coating Product;"

(D) any other information necessary to determine the PWMIR of the aerosol coating product to be tested including the MIR value for each individual ingredient or hydrocarbon solvent(s) used to calculate the PWMIR;

(E) Failure to provide the required information within 25 working days or providing incomplete or inaccurate formulation data are violations and subject to penalties.

(2) The Responsible Party must supply the contact person, mailing address, email address, and phone number for the party who is to be contacted to provide the information specified in (b)(1).

(3) The information specified in (b)(2) shall be supplied to the Executive Officer before January 1, 2015, and anytime thereafter that the information changes.

(4) Final determination of the PWMIR of the "Aerosol Coating Product" shall be determined using the information obtained from section 94526(a).

(A) If an aerosol coating product contains one or more Hydrocarbon Solvent(s), the following MIR values shall be used to determine the weighted MIR for each Hydrocarbon Solvent fraction:

Table 94526(b)(4)(A)

<i>Hydrocarbon Solvent Fraction</i>	<i>MIR Value</i>
	<i>(October 2, 2010)</i>
<i>Alkanes</i>	
Alkane(s) containing 5 carbons	1.45

Alkane(s) containing 6 carbons	1.27
Alkane(s) containing 7 carbons	1.41
Alkane(s) containing 8 carbons	1.27
Alkane(s) containing 9 carbons	1.09
Alkane(s) containing 10 carbons	0.90
Alkane(s) containing 11+ carbons	0.66

Aromatic Compounds

Xylene isomers, Ethyl benzene	7.64
Aromatics containing 9 carbons	7.99
Aromatics containing C10+carbons	6.95

(B) If there exists a discrepancy that cannot be resolved between the results of Method 310 and the supplied formulation data, then the results of Method 310 shall take precedence over the supplied formulation data. The results of Method 310 shall then be used to determine if the product is in compliance with the applicable Reactivity Limit, and may be used to establish a violation of this article.

Note: Authority cited: [Sections 39600, 39601, 39607, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39607, 40000, 41511 and 41712, Health and Safety Code](#). Authority cited: [Sections 39600, 39601, 39607, 41511 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39607, 40000, 41511 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Editorial correction of section number (Register 96, No. 9).
3. Amendment of section and Note filed 11-13-97; operative 12-13-97 (Register 97, No. 46).
4. Amendment filed 11-16-99; operative 12-16-99 (Register 99, No. 47).
5. Amendment of first paragraph and subsections (a)-(a)(1), new subsections (b)-(b)(3), subsection relettering, and amendment of newly designated subsections (c)-(c)(1) filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
6. Amendment of subsections (a)(1), (b)(1), (c)(1) and (f) filed 6-20-2005; operative 7-20-2005 (Register 2005, No. 25).
7. Amendment of section heading and section filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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17 CCR § 94527

§ 94527. Severability.

Each part of this article shall be deemed severable, and in the event that any part of this article is held to be invalid, the remainder of this article shall continue in full force and effect.

Note: Authority cited: [Sections 39600, 39601 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).

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17 CCR § 94528

§ 94528. Federal Enforceability.

For purposes of federal enforceability of this article, the United States Environmental Protection Agency is not subject to approval determinations made by the Executive Officer under sections 94525 and 94526. Within 180 days of a request from a person who has been granted a variance under section 94525, a variance meeting the requirements of the Clean Air Act shall be submitted by the Executive Officer to the Environmental Protection Agency for inclusion in the applicable implementation plan approved or promulgated by the Environmental Protection Agency pursuant to section 110 of the Clean Air Act, [42 U.S.C., section 7410](#).

Note: Authority cited: [Sections 39600, 39601, 39602 and 41712, Health and Safety Code](#). Reference: [Sections 39002, 39600, 39602, 40000 and 41712, Health and Safety Code](#).

HISTORY

1. New section filed 1-8-96; operative 1-8-96 pursuant to [Government Code section 11343.4\(d\)](#) (Register 96, No. 2).
2. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

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Article 1. Tables of Maximum Incremental Reactivity (MIR) Values

17 CCR § 94700

§ 94700. MIR Values for Compounds.

		<i>MIR Value</i> <i>(July 18, 2001)</i>	<i>New MIR Value</i> <i>October 2, 2010</i>
	<i>Organic Compound</i>		
	<i>Alkanes</i>		
1	methane	0.01	0.014
2	ethane	0.31	0.28
3	propane	0.56	0.49
4	cyclopropane	0.10	0.09
5	n-butane	1.33	1.15
6	isobutane	1.35	1.23
7	cyclobutane	1.05	1.20
8	n-pentane	1.54	1.31
9	branched C5 alkane(s)	1.68	1.45
10	neopentane	0.69	0.67
11	isopentane	1.68	1.45
12	cyclopentane	2.69	2.39
13	n-hexane	1.45	1.24
14	branched C6 alkane(s)	1.53	1.31
15	2,2-dimethyl butane	1.33	1.17
16	2,3-dimethyl butane	1.14	0.97
17	2-methyl pentane	1.80	1.50
18	3-methyl pentane	2.07	1.80
19	C6 cycloalkane(s)	1.46	1.25
20	cyclohexane	1.46	1.25
21	isopropyl cyclopropane	1.52	1.22
22	methyl cyclopentane	2.42	2.19
23	unspeciated C6 alkane(s)	1.48	1.27
24	n-heptane	1.28	1.07
25	2,2,3-trimethyl butane	1.32	1.11
26	2,2-dimethyl pentane	1.22	1.12
27	2,3-dimethyl pentane	1.55	1.34
28	2,4-dimethyl pentane	1.65	1.55
29	2-methyl hexane	1.37	1.19
30	3,3-dimethyl pentane	1.32	1.20
31	3-methyl hexane	1.86	1.61
32	3-ethyl pentane*	1.79	1.90
33	branched C7 alkane(s)	1.63	1.48
34	1,1-dimethyl cyclopentane*	1.01	1.08

35	1,2-dimethyl cyclopentane*	1.87	1.99
36	C7 cycloalkane(s)	1.99	1.70
37	1,3-dimethyl cyclopentane	2.15	1.94
38	cycloheptane	2.26	1.96
39	ethyl cyclopentane	2.27	2.01
40	methyl cyclohexane	1.99	1.70
41	unspeciated C7 alkane(s)	1.79	1.41
42	n-octane	1.11	0.90
43	branched C8 alkane(s)	1.57	1.45
44	2,2,3,3-tetramethyl butane	0.44	0.33
45	2,2,4-trimethyl pentane	1.44	1.26
46	2,2-dimethyl hexane	1.13	1.02
47	2,3,4-trimethyl pentane	1.23	1.03
48	2,3-dimethyl hexane	1.34	1.19
49	2,4-dimethyl hexane	1.80	1.73
50	2,5-dimethyl hexane	1.68	1.46
51	2-methyl heptane	1.20	1.07
52	3-methyl heptane	1.35	1.24
53	4-methyl heptane	1.48	1.25
54	2,3,3-trimethyl pentane*	0.95	1.02
55	3,3-dimethyl hexane*	1.16	1.24
56	2,2,3-trimethyl pentane*	1.15	1.22
57	3,4-dimethyl hexane*	1.41	1.51
58	3-ethyl 2-methyl pentane*	1.25	1.33
59	C8 bicycloalkane(s)	1.75	1.51
60	1,1,2-trimethyl cyclopentane*	1.04	1.12
61	1,1,3-trimethyl cyclopentane*	0.94	1.01
62	1,1-dimethyl cyclohexane*	1.13	1.22
63	1,2,3-trimethyl cyclopentane*	1.52	1.63
64	1,2,4-trimethyl cyclopentane*	1.43	1.53
65	1-methyl-3-ethyl cyclopentane*	1.53	1.64
66	1,2-dimethyl cyclohexane*	1.30	1.41
67	1,4-dimethyl cyclohexane*	1.51	1.62
68	C8 cycloalkane(s)	1.75	1.47
69	1,3-dimethyl cyclohexane	1.72	1.52
70	cyclooctane	1.73	1.46
71	ethyl cyclohexane	1.75	1.47
72	propyl cyclopentane	1.91	1.69
73	unspeciated C8 alkane(s)	1.64	1.27
74	n-nonane	0.95	0.78
75	branched C9 alkane(s)	1.25	1.14
76	2,2,5-trimethyl hexane	1.33	1.13
77	2,3,5-trimethyl hexane	1.33	1.22
78	2,4-dimethyl heptane	1.48	1.38
79	2-methyl octane	0.96	0.83
80	3,3-diethyl pentane	1.35	1.21
81	3,5-dimethyl heptane	1.63	1.56
82	4-ethyl heptane	1.44	1.22
83	4-methyl octane	1.08	0.95
84	2,4,4-trimethyl hexane*	1.26	1.34
85	3,3-dimethyl heptane*	1.05	1.13
86	4,4-dimethyl heptane*	1.19	1.27
87	2,2-dimethyl heptane*	0.93	1.00
88	2,2,4-trimethyl hexane*	1.19	1.26
89	2,6-dimethyl heptane*	0.96	1.04
90	2,3-dimethyl heptane*	1.01	1.09
91	2,5-dimethyl heptane*	1.25	1.35
92	3-methyl octane*	0.91	0.99

93	3,4-dimethyl heptane*	1.15	1.24
94	3-ethyl heptane*	1.01	1.10
95	cis-hydrindane; bicyclo[4.3.0] nonane*	1.20	1.31
96	C9 bicycloalkane(s)	1.57	1.39
97	1,2,3-trimethyl cyclohexane*	1.12	1.22
98	1,3,5-trimethyl cyclohexane*	1.06	1.15
99	1,1,3-trimethyl cyclohexane	1.37	1.19
100	1-ethyl-4-methyl cyclohexane	1.62	1.44
101	propyl cyclohexane	1.47	1.29
102	C9 cycloalkane(s)	1.55	1.36
103	unspeciated C9 alkane(s)	2.13	1.09
104	n-decane; n-C10	0.83	0.68
105	branched C10 alkane(s)	1.09	0.94
106	2,4,6-trimethyl heptane*	1.20	1.28
107	2,4-dimethyl octane	1.09	1.03
108	2,6-dimethyl octane	1.27	1.08
109	2-methyl nonane	0.86	0.73
110	3,4-diethyl hexane	1.20	0.89
111	3-methyl nonane	0.89	0.75
112	4-methyl nonane	0.99	0.86
113	4-propyl heptane	1.24	1.02
114	2,4,4-trimethyl heptane*	1.23	1.31
115	2,5,5-trimethyl heptane*	1.17	1.25
116	3,3-dimethyl octane*	1.01	1.09
117	4,4-dimethyl octane*	1.06	1.14
118	2,2-dimethyl octane*	0.77	0.83
119	2,2,4-trimethyl heptane*	1.09	1.16
120	2,2,5-trimethyl heptane*	1.18	1.26
121	2,3,6-trimethyl heptane*	0.82	0.90
122	2,3-dimethyl octane*	0.79	0.86
123	2,5-dimethyl octane*	0.94	1.03
124	2-methyl-3-ethyl heptane*	0.91	0.99
125	4-ethyl octane*	0.71	0.79
126	C10 bicycloalkane(s)	1.29	1.09
127	isobutyl cyclohexane; (2-methylpropyl) cyclohexane*	0.90	0.99
128	sec-butyl cyclohexane*	0.90	0.99
129	C10 cycloalkane(s)	1.27	1.07
130	1,3-diethyl cyclohexane	1.34	1.26
131	1,4-diethyl cyclohexane	1.49	1.23
132	1-methyl-3-isopropyl cyclohexane	1.26	1.00
133	butyl cyclohexane	1.07	0.99
134	unspeciated C10 alkane(s)	1.16	0.90
135	n-undecane; n-C11	0.74	0.61
136	branched C11 alkane(s)	0.87	0.73
137	2,3,4,6-tetramethyl heptane	1.26	1.11
138	2,6-dimethyl nonane	0.95	0.79
139	3,5-diethyl heptane	1.21	1.11
140	3-methyl decane	0.77	0.65
141	4-methyl decane	0.80	0.68
142	C11 bicycloalkane(s)	1.01	0.91
143	C11 cycloalkane(s)	0.99	0.90
144	1,3-diethyl-5-methyl cyclohexane	1.11	1.04
145	1-ethyl-2-propyl cyclohexane	0.95	0.81
146	pentyl cyclohexane	0.91	0.84

147	unspeciated C11 alkane(s)	0.90	0.74
148	n-dodecane; n-C12	0.66	0.55
149	branched C12 alkane(s)	0.80	0.63
150	2,3,5,7-tetramethyl octane	1.06	0.91
151	2,6-diethyl octane	1.09	0.97
152	3,6-dimethyl decane	0.88	0.70
153	3-methyl undecane	0.70	0.59
154	5-methyl undecane	0.72	0.55
155	C12 tricycloalkane(s)*	0.74	0.82
156	C12 bicycloalkane(s)	0.88	0.81
157	C12 cycloalkane(s)	0.87	0.80
158	1,3,5-triethyl cyclohexane	1.06	1.02
159	1-methyl-4-pentyl cyclohexane	0.81	0.72
160	hexyl cyclohexane	0.75	0.65
161	unspeciated C12 alkane(s)	0.81	0.66
162	n-tridecane; n-C-13	0.62	0.53
163	branched C13 alkane(s)	0.73	0.60
164	2,3,6-trimethyl 4-isopropyl heptane	1.24	0.93
165	2,4,6,8-tetramethyl nonane	0.94	0.76
166	3,6-dimethyl undecane	0.82	0.69
167	3,7-diethyl nonane	1.08	0.89
168	3-methyl dodecane	0.64	0.54
169	5-methyl dodecane	0.64	0.47
170	C13 tricycloalkane(s)*	0.64	0.71
171	C13 bicycloalkane(s)	0.79	0.70
172	C13 cycloalkane(s)	0.78	0.70
173	1,3-diethyl-5-propyl cyclohexane	0.96	0.96
174	1-methyl-2-hexyl cyclohexane	0.70	0.58
175	heptyl cyclohexane	0.66	0.55
176	unspeciated C13 alkane(s)	0.73	0.61
177	n-tetradecane; n-C14	0.58	0.51
178	branched C14 alkane(s)	0.67	0.55
179	2,4,5,6,8-pentamethyl nonane	1.11	0.95
180	2-methyl 3,5-diisopropyl heptane	0.78	0.56
181	3,7-dimethyl dodecane	0.74	0.62
182	3,8-diethyl decane	0.68	0.60
183	3-methyl tridecane	0.57	0.51
184	6-methyl tridecane	0.62	0.46
185	C14 tricycloalkane(s)*	0.60	0.66
186	C14 bicycloalkane(s)	0.71	0.66
187	C14 cycloalkane(s)	0.71	0.65
188	1,3-dipropyl-5-ethyl cyclohexane	0.94	0.91
189	trans-1-methyl-4-heptyl cyclohexane	0.58	0.53
190	octyl cyclohexane	0.60	0.51
191	unspeciated C14 alkane(s)	0.67	0.57
192	n-pentadecane; n-C15	0.53	0.50
193	branched C15 alkane(s)	0.60	0.50
194	2,6,8-trimethyl 4-isopropyl nonane	0.76	0.63
195	3,7-dimethyl tridecane	0.64	0.55
196	3,9-diethyl undecane	0.62	0.51
197	3-methyl tetradecane	0.53	0.48
198	6-methyl tetradecane	0.57	0.42

199	C15 tricycloalkane(s)*	0.56	0.63
200	C15 bicycloalkane(s)	0.69	0.62
201	C15 cycloalkane(s)	0.68	0.61
202	1,3,5-tripropyl cyclohexane	0.90	0.87
203	1-methyl-2-octyl cyclohexane	0.60	0.50
204	nonyl cyclohexane	0.54	0.47
205	1,3-diethyl-5-pentyl cyclohexane	0.99	0.66
206	unspeciated C15 alkane(s)	0.61	0.54
207	n-hexadecane; n-C16	0.52	0.45
208	branched C16 alkane(s)	0.54	0.47
209	2,7-dimethyl 3,5-diisopropyl heptane	0.69	0.52
210	3-methyl pentadecane	0.50	0.46
211	4,8-dimethyl tetradecane	0.55	0.49
212	7-methyl pentadecane	0.51	0.45
213	C16 tricycloalkane(s)*	0.53	0.59
214	C16 bicycloalkane(s)*	0.52	0.58
215	C16 cycloalkane(s)	0.61	0.55
216	1,3-propyl-5-butyl cyclohexane	0.77	0.75
217	1-methyl-4-nonyl cyclohexane	0.55	0.46
218	decyl cyclohexane	0.50	0.43
219	unspeciated C16 alkane(s)	0.55	0.49
220	n-heptadecane; n-C17	0.49	0.42
221	branched C17 alkane(s)	0.51	0.44
222	C17 tricycloalkane(s)*	0.50	0.55
223	C17 bicycloalkane(s)*	0.49	0.55
224	C17 cycloalkane(s)*	0.46	0.52
225	unspeciated C17 alkane(s)	0.52	0.46
226	n-octadecane; n-C18	0.44	0.40
227	branched C18 alkane(s)	0.48	0.42
228	C18 tricycloalkane(s)*	0.47	0.52
229	C18 bicycloalkane(s)*	0.46	0.52
230	C18 cycloalkane(s)*	0.44	0.49
231	unspeciated C18 alkane(s)	0.49	0.44
232	n-nonadecane; n-C19	0.44	0.38
233	branched C19 alkane(s)*	0.35	0.40
234	C19 tricycloalkane(s)*	0.44	0.49
235	C19 bicycloalkane(s)*	0.44	0.49
236	C19 cycloalkane(s)*	0.42	0.46
237	n-eicosane; icosane; n-C20	0.42	0.36
238	branched C20 alkane(s)*	0.34	0.38
239	C20 tricycloalkane(s)*	0.42	0.47
240	C20 bicycloalkane(s)*	0.42	0.46
241	C20 cycloalkane(s)*	0.39	0.44
242	n-heneicosane; n-C21	0.40	0.34
243	branched C21 alkane(s)*	0.32	0.36
244	C21 tricycloalkane(s)*	0.40	0.44
245	C21 bicycloalkane(s)*	0.40	0.44
246	C21 cycloalkane(s)*	0.38	0.42
247	n-docosane, n-C22	0.38	0.33
248	branched C22 alkane(s)*	0.31	0.34
249	C22 tricycloalkane(s)*	0.38	0.42
250	C22 bicycloalkane(s)*	0.38	0.42
251	C22 cycloalkane(s)*	0.36	0.40
	<i>Alkenes</i>		
252	ethene	9.08	9.00

253	propene	11.58	11.66
254	1,2-propadiene; allene*	8.11	8.45
255	1-butene	10.29	9.73
256	C4 terminal alkenes	10.29	9.73
257	isobutene	6.35	6.29
258	cis-2-butene	13.22	14.24
259	trans-2-butene	13.91	15.16
260	C4 internal alkenes	13.57	14.70
261	1,2-butadiene*	9.03	9.35
262	1,3-butadiene	13.58	12.61
263	C4 alkenes	11.93	12.22
264	1-pentene	7.79	7.21
265	3-methyl-1-butene	6.99	6.99
266	C5 terminal alkenes	7.79	7.21
267	2-methyl-1-butene	6.51	6.40
268	2-methyl-2-butene	14.45	14.08
269	cis-2-pentene	10.24	10.38
270	trans-2-pentene	10.23	10.56
271	2-pentenenes	10.23	10.47
272	C5 internal alkenes	10.23	10.47
273	cyclopentene	7.38	6.77
274	trans-1,3-pentadiene*	12.10	12.50
275	cis-1,3-pentadiene*	12.10	12.50
276	1,4-pentadiene*	8.92	9.24
277	1,2-pentadiene*	7.59	7.86
278	3-methyl-1,2-butadiene*	9.95	10.29
279	isoprene; 2-methyl-1,3-butadiene	10.69	10.61
280	cyclopentadiene	7.61	6.98
281	C5 alkenes	9.01	8.84
282	1-hexene	6.17	5.49
283	3,3-dimethyl-1-butene	6.06	5.82
284	3-methyl-1-pentene	6.22	6.14
285	4-methyl-1-pentene	6.26	5.68
286	C6 terminal alkenes	6.17	5.49
287	2,3-dimethyl-1-butene	4.77	4.75
288	2-ethyl-1-butene	5.04	5.07
289	2-methyl-1-pentene	5.18	5.26
290	2,3-dimethyl-2-butene	13.32	12.49
291	2-methyl-2-pentene	12.28	11.00
292	cis-4-methyl-2-pentene*	7.88	8.12
293	cis-2-hexene	8.44	8.31
294	cis-3-hexene	8.22	7.61
295	cis-3-methyl-2-pentene	12.84	12.49
296	trans-3-methyl-2-pentene*	14.17	13.17
297	trans-4-methyl-2-pentene*	7.88	8.12
298	trans-2-hexene	8.44	8.62
299	trans-3-hexene	8.16	7.57
300	2-hexenes	8.44	8.47
301	C6 internal alkenes	8.44	8.47
302	3-methyl cyclopentene*	4.92	5.10
303	1-methyl cyclopentene	13.95	12.49
304	cyclohexene	5.45	5.00
305	trans,trans-2,4-hexadiene*	8.57	8.83
306	trans-1,3-hexadiene*	10.03	10.37
307	trans-1,4-hexadiene*	8.36	8.64
308	C6 cyclic olefins or di-olefins	8.65	8.68
309	C6 alkenes	6.88	6.98

310	trans-4-methyl-2-hexene	7.88	7.18
311	trans-3-methyl-2-hexene	14.17	10.07
312	2,3-dimethyl-2-hexene	10.41	8.53
313	1-heptene	4.20	4.43
314	3,4-dimethyl-1-pentene*	4.66	4.84
315	3-methyl-1-hexene*	4.24	4.41
316	2,4-dimethyl-1-pentene*	5.81	6.01
317	2,3-dimethyl-1-pentene*	4.97	5.15
318	3,3-dimethyl-1-pentene*	4.71	4.91
319	2-methyl-1-hexene*	4.92	5.10
320	2,3,3-trimethyl-1-butene	4.62	4.49
321	C7 terminal alkenes	4.20	4.43
322	4,4-dimethyl-cis-2-pentene*	6.45	6.64
323	2,4-dimethyl-2-pentene*	9.03	9.29
324	2-methyl-2-hexene*	9.22	9.47
325	3-ethyl-2-pentene*	9.49	9.75
326	3-methyl-trans-3-hexene*	9.44	9.72
327	cis-2-heptene*	6.94	7.16
328	2-methyl-trans-3-hexene*	6.03	6.25
329	3-methyl-cis-3-hexene*	9.44	9.72
330	3,4-dimethyl-cis-2-pentene*	8.91	9.15
331	2,3-dimethyl-2-pentene*	10.41	9.74
332	cis-3-heptene	6.96	6.33
333	trans-4,4-dimethyl-2-pentene	6.99	6.64
334	trans-2-heptene	7.33	7.14
335	trans-3-heptene	6.96	6.32
336	cis-3-methyl-2-hexene	13.38	10.07
337	2-heptenes	6.96	6.32
338	C7 internal alkenes	6.96	6.32
339	1-methyl cyclohexene	7.81	6.61
340	4-methyl cyclohexene	4.48	4.18
341	C7 cyclic olefins or di-olefins	7.49	7.29
342	C7 alkenes	5.76	5.37
343	1-octene	3.45	3.25
344	C8 terminal alkenes	3.45	3.25
345	2,4,4-trimethyl-1-pentene*	3.24	3.34
346	3-methyl-2-isopropyl-1-butene	3.29	3.31
347	trans-2-octene*	5.81	6.00
348	2-methyl-2-heptene*	8.10	8.33
349	cis-4-octene	5.94	4.73
350	trans-2,2-dimethyl 3-hexene	5.97	5.00
351	trans-2,5-dimethyl 3-hexene	5.44	4.82
352	trans-3-octene	6.13	5.34
353	trans-4-octene	5.90	4.81
354	3-octenes	6.13	5.34
355	C8 internal alkenes	5.90	4.81
356	2,4,4-trimethyl-2-pentene	8.52	6.29
357	1,2-dimethyl cyclohexene	6.77	5.63
358	C8 cyclic olefins or di-olefins	6.01	4.89
359	C8 alkenes	4.68	4.03
360	1-nonene	2.76	2.60
361	C9 terminal alkenes	2.76	2.60
362	4,4-dimethyl-1-pentene*	3.00	3.13
363	4-nonene*	4.37	4.54
364	3-nonenes	5.31	4.54
365	C9 internal alkenes	5.31	4.54
366	trans-4-nonene	5.23	4.54
367	C9 cyclic olefins or di-olefins	5.40	4.62

368	C9 alkenes	4.03	3.57
369	1-decene	2.28	2.17
370	C10 terminal alkenes	2.28	2.17
371	3,4-diethyl-2-hexene	3.95	3.38
372	cis-5-decene	4.89	3.66
373	trans-4-decene	4.50	3.87
374	C10 3-alkenes	4.50	3.87
375	C10 internal alkenes	4.50	3.87
376	C10 cyclic olefins or di-olefins	4.56	3.93
377	3-carene	3.21	3.24
378	α -pinene	4.29	4.51
379	β -pinene	3.28	3.52
380	d-limonene	3.99	4.55
381	sabinene	3.67	4.19
382	terpinolene*	6.16	6.36
383	camphene*	4.38	4.51
384	terpene (monoterpenes)	3.79	4.04
385	C10 alkenes	3.39	3.31
386	1-undecene	1.95	1.87
387	C11 terminal alkenes	1.95	1.87
388	trans-5-undecene	4.23	3.60
389	C11 3-alkenes	4.23	3.60
390	C11 internal alkenes	4.23	3.60
391	C11 cyclic olefins or di-olefins	4.29	3.65
392	C11 alkenes	3.09	2.73
393	C12 terminal alkenes	1.72	1.64
394	1-dodecene	1.72	1.64
395	C12 2-alkenes	3.75	3.14
396	C12 3-alkenes	3.75	3.14
397	C12 internal alkenes	3.75	3.14
398	trans-5-dodecene	3.74	3.14
399	C12 cyclic olefins or di-olefins	3.79	3.18
400	C12 alkenes	2.73	2.39
401	1-tridecene	1.55	1.48
402	C13 terminal alkenes	1.55	1.48
403	trans-5-tridecene	3.38	2.59
404	C13 3-alkenes	3.38	2.59
405	C13 internal alkenes	3.38	2.59
406	C13 cyclic olefins or di-olefins	3.42	2.62
407	C13 alkenes	2.46	2.03
408	1-tetradecene	1.41	1.34
409	C14 terminal alkenes	1.41	1.34
410	trans-5-tetradecene	3.08	2.35
411	C14 3-alkenes	3.08	2.35
412	C14 internal alkenes	3.08	2.35
413	C14 cyclic olefins or di-olefins	3.11	2.38
414	C14 alkenes	2.28	1.85
415	1-pentadecene	1.27	1.25
416	C15 terminal alkenes	1.27	1.25
417	trans-5-pentadecene	2.82	2.16
418	C15 3-alkenes	2.82	2.16
419	C15 internal alkenes	2.82	2.16
420	C15 cyclic olefins or di-olefins	2.85	2.19
421	C15 alkenes	2.06	1.71
	<i>Aromatic Hydrocarbons</i>		
422	benzene	0.81	0.72
423	toluene	3.97	4.00

424	ethyl benzene	2.79	3.04
425	m-xylene	10.61	9.75
426	o-xylene	7.49	7.64
427	p-xylene	4.25	5.84
428	C8 disubstituted benzenes	7.48	7.76
429	isomers of ethylbenzene	5.16	6.57
430	styrene	1.95	1.73
431	unspeciated C8 aromatics*	7.42	7.64
432	C9 monosubstituted benzenes	2.20	2.03
433	n-propyl benzene	2.20	2.03
434	isopropyl benzene; cumene	2.32	2.52
435	C9 disubstituted benzenes	6.61	5.81
436	m-ethyl toluene	9.37	7.39
437	o-ethyl toluene	6.61	5.59
438	p-ethyl toluene	3.75	4.44
439	C9 trisubstituted benzenes	9.90	10.87
440	1,2,3-trimethyl benzene	11.26	11.97
441	1,2,4-trimethyl benzene	7.18	8.87
442	1,3,5-trimethyl benzene	11.22	11.76
443	isomers of propyl benzene	6.12	6.23
444	indene	3.21	1.55
445	indane	3.17	3.32
446	allylbenzene*	1.45	1.53
447	α -methyl styrene	1.72	1.53
448	C9 styrenes	1.72	1.53
449	β -methyl styrene*	0.95	1.01
450	unspeciated C9 aromatics*	7.92	7.99
451	C10 monosubstituted benzenes	1.97	2.36
452	n-butyl benzene	1.97	2.36
453	sec-butyl benzene	1.97	2.36
454	tert-butyl benzene*	1.89	1.95
455	o-cymene; 1-methyl-2-(1-methylethyl) benzene*	5.34	5.49
456	1-methyl-2-n-propyl benzene*	5.34	5.49
457	m-cymene; 1-methyl-3-(1-methylethyl) benzene*	6.92	7.10
458	1-methyl-3-n-propyl benzene*	6.92	7.10
459	1-methyl-4-n-propyl benzene*	4.31	4.43
460	C10 disubstituted benzenes	5.92	5.68
461	m-C10 disubstituted benzenes*	6.92	7.10
462	o-C10 disubstituted benzenes*	5.34	5.49
463	p-C10 disubstituted benzenes*	4.31	4.43
464	m-diethyl benzene	8.39	7.10
465	o-diethyl benzene	5.92	5.49
466	1-methyl-4-isopropyl benzene; p-cymene*	4.32	4.44
467	p-diethyl benzene	3.36	4.43
468	1,2,3-C10 trisubstituted benzenes*	9.89	10.15
469	1,2,4-C10 trisubstituted benzenes*	7.35	7.55
470	1,3,5-C10 trisubstituted benzenes*	9.80	10.08
471	1,2,3,4-tetramethyl benzene*	9.01	9.26
472	1,2,4,5-tetramethyl benzene*	9.01	9.26
473	1,2-dimethyl-3-ethyl benzene*	9.89	10.15
474	1,2-dimethyl-4-ethyl benzene*	7.35	7.55
475	1,3-dimethyl-2-ethyl benzene*	9.89	10.15
476	1,3-dimethyl-4-ethyl benzene*	7.35	7.55
477	1,3-dimethyl-5-ethyl benzene*	9.80	10.08
478	1,4-dimethyl-2-ethyl benzene*	7.35	7.55

479	1,2,3,5-tetramethyl benzene	8.25	9.26
480	C10 trisubstituted benzenes	8.86	9.26
481	C10 tetrasubstituted benzenes	8.86	9.26
482	butylbenzenes	5.48	5.76
483	methyl indanes	2.83	2.97
484	tetralin; 1,2,3,4-tetrahydronaphthalene	2.83	2.97
485	naphthalene	3.26	3.34
486	C10 styrenes	1.53	1.37
487	unspeciated C10 aromatics	5.48	7.07
488	n-pentyl benzene*	2.04	2.12
489	C11 monosubstituted benzenes	1.78	2.12
490	m-C11 disubstituted benzenes*	5.98	6.15
491	o-C11 disubstituted benzenes*	4.60	4.73
492	p-C11 disubstituted benzenes*	3.77	3.88
493	1-butyl-2-methyl benzene*	4.60	4.73
494	1-ethyl-2-n-propyl benzene*	4.60	4.73
495	o-tert-butyl toluene; 1-(1,1-dimethylethyl)-2-methyl benzene*	4.60	4.73
496	1-methyl-3-n-butyl benzene*	5.98	6.15
497	p-isobutyl toluene; 1-methyl-4-(2-methylpropyl) benzene*	3.77	3.88
498	C11 disubstituted benzenes	5.35	4.92
499	1,2,3-C11 trisubstituted benzenes*	8.64	8.88
500	1,2,4-C11 trisubstituted benzenes*	6.44	6.62
501	1,3,5-C11 trisubstituted benzenes*	8.65	8.90
502	pentamethyl benzene*	7.91	8.13
503	1-methyl-3,5-diethyl benzene*	8.65	8.90
504	C11 trisubstituted benzenes	8.03	8.13
505	C11 tetrasubstituted benzenes	8.03	8.13
506	C11 pentasubstituted benzenes	8.03	8.13
507	pentyl benzenes	4.96	4.90
508	C11 tetralins or indanes	2.56	2.69
509	methyl naphthalenes	4.61	3.06
510	1-methyl naphthalene	4.61	3.06
511	2-methyl naphthalene	4.61	3.06
512	unspeciated C11 aromatics	4.96	6.95
513	C12 monosubstituted benzenes	1.63	1.90
514	m-C12 disubstituted benzenes*	5.35	5.49
515	o-C12 disubstituted benzenes*	4.11	4.23
516	p-C12 disubstituted benzenes*	3.38	3.49
517	1,3-di-n-propyl benzene*	4.11	4.23
518	1,4 di-isopropyl benzene*	3.38	3.49
519	3-isopropyl cumene; 1,3-di-isopropyl benzene*	5.35	5.49
520	C12 disubstituted benzenes	4.90	4.40
521	1,2,3-C12 trisubstituted benzenes*	7.74	7.95
522	1,2,4-C12 trisubstituted benzenes*	5.78	5.94
523	1,3,5-C12 trisubstituted benzenes*	7.79	8.02
524	1-(1,1-dimethylethyl)-3,5-dimethylbenzene*	7.79	8.02

525	C12 trisubstituted benzenes	7.33	7.30
526	C12 tetrasubstituted benzenes	7.33	7.30
527	C12 pentasubstituted benzenes	7.33	7.30
528	C12 hexasubstituted benzenes	7.33	7.30
529	hexyl benzenes	4.53	4.39
530	C12 tetralins or indanes	2.33	2.45
531	1-ethyl naphthalene*	2.69	2.78
532	C12 naphthalenes*	3.76	3.89
533	C12 monosubstituted		
	naphthalene	4.20	2.78
534	C12 disubstituted naphthalenes	5.54	4.99
535	2,3-dimethyl naphthalene	5.54	4.99
536	dimethyl naphthalenes	5.54	4.99
537	unspeciated C12 aromatics	4.53	6.02
538	C13 monosubstituted benzenes	1.50	1.74
539	m-C13 disubstituted benzenes*	4.80	4.93
540	o-C13 disubstituted benzenes*	3.67	3.78
541	p-C13 disubstituted benzenes*	3.03	3.13
542	C13 disubstituted benzenes	4.50	3.95
543	1,2,3-C13 trisubstituted		
	benzenes*	6.94	7.13
544	1,2,4-C13 trisubstituted		
	benzenes*	5.20	5.35
545	1,3,5-C13 trisubstituted		
	benzenes*	7.04	7.24
546	C13 trisubstituted benzenes	6.75	6.57
547	C13 tetralins or indanes*	2.17	2.25
548	C13 naphthalenes*	3.45	3.57
549	C13 monosubstituted		
	naphthalene	3.86	2.55
550	C13 disubstituted naphthalenes	5.08	4.58
551	C13 trisubstituted naphthalenes	5.08	4.58
552	unspeciated C13 aromatics*	4.88	4.81
553	C14 monosubstituted benzenes*	1.53	1.60
554	m-C14 disubstituted benzenes*	4.32	4.45
555	o-C14 disubstituted benzenes*	3.30	3.40
556	p-C14 disubstituted benzenes*	2.75	2.84
557	C14 disubstituted benzenes*	3.46	3.56
558	1,2,3-C14 trisubstituted		
	benzenes*	6.31	6.49
559	1,2,4-C14 trisubstituted		
	benzenes*	4.75	4.89
560	1,3,5-C14 trisubstituted		
	benzenes*	6.44	6.63
561	C14 trisubstituted benzenes*	5.84	6.00
562	C14 tetralins or indanes*	2.01	2.09
563	C14 naphthalenes*	3.19	3.30
564	unspeciated C14 aromatics*	3.93	3.80
565	C15 monosubstituted benzenes*	1.42	1.48
566	C15 disubstituted benzenes*	3.15	3.25
567	m-C15 disubstituted benzenes*	3.93	4.04
568	o-C15 disubstituted benzenes*	3.00	3.09
569	p-C15 disubstituted benzenes*	2.51	2.59
570	C15 trisubstituted benzenes*	5.35	5.50
571	1,2,3-C15 trisubstituted		
	benzenes*	5.77	5.94
572	1,2,4-C15 trisubstituted		
	benzenes*	4.35	4.47

573	1,3,5-C15 trisubstituted benzenes*	5.92	6.10
574	C15 tetralins or indanes*	1.87	1.94
575	C15 naphthalenes*	2.97	3.06
576	unspeciated C15 aromatics*	3.35	3.20
577	C16 monosubstituted benzenes*	1.32	1.38
578	m-C16 disubstituted benzenes*	3.60	3.71
579	o-C16 disubstituted benzenes*	2.74	2.83
580	p-C16 disubstituted benzenes*	2.30	2.38
581	C16 disubstituted benzenes*	2.88	2.97
582	1,2,3-C16 trisubstituted benzenes*	5.31	5.46
583	1,2,4-C16 trisubstituted benzenes*	4.01	4.13
584	1,3,5-C16 trisubstituted benzenes*	5.47	5.63
585	C16 trisubstituted benzenes*	4.93	5.07
586	C16 tetralins or indanes*	1.75	1.82
587	C16 naphthalenes*	2.77	2.86
588	unspeciated C16 aromatics*	2.96	2.79
589	C17 monosubstituted benzenes*	1.24	1.30
590	C17 disubstituted benzenes*	2.71	2.79
591	C17 trisubstituted benzenes*	4.63	4.77
592	C17 tetralins or indanes*	1.64	1.70
593	C17 naphthalenes*	2.60	2.68
594	C18 monosubstituted benzenes*	1.17	1.23
595	C18 disubstituted benzenes*	2.55	2.63
596	C18 trisubstituted benzenes*	4.37	4.49
597	C18 tetralins or indanes*	1.55	1.61
598	C18 naphthalenes*	2.45	2.53
599	C19 monosubstituted benzenes*	1.11	1.16
600	C19 disubstituted benzenes*	2.42	2.49
601	C19 trisubstituted benzenes*	4.13	4.25
602	C19 tetralins or indanes*	1.46	1.52
603	C19 naphthalenes*	2.31	2.39
604	C20 monosubstituted benzenes*	1.05	1.10
605	C20 disubstituted benzenes*	2.29	2.36
606	C20 trisubstituted benzenes*	3.92	4.04
607	C20 tetralins or indanes*	1.39	1.44
608	C20 naphthalenes*	2.19	2.26
609	C21 monosubstituted benzenes*	1.00	1.05
610	C21 disubstituted benzenes*	2.18	2.25
611	C21 trisubstituted benzenes*	3.73	3.84
612	C21 tetralins or indanes*	1.32	1.37
613	C21 naphthalenes*	2.08	2.15
614	C22 monosubstituted benzenes*	0.96	1.00
615	C22 disubstituted benzenes*	2.08	2.14
616	C22 trisubstituted benzenes*	3.56	3.66
617	C22 tetralins or indanes*	1.26	1.31
618	C22 naphthalenes*	1.98	2.05
	<i>Oxygenated Organics</i>		
	<i>Alcohols</i>		
619	methanol	0.71	0.67
620	ethanol	1.69	1.53
621	isopropyl alcohol	0.71	0.61
622	n-propyl alcohol	2.74	2.50

623	isobutyl alcohol	2.24	2.51
624	n-butyl alcohol	3.34	2.88
625	sec-butyl alcohol	1.60	1.36
626	tert-butyl alcohol	0.45	0.41
627	cyclopentanol	1.96	1.72
628	2-pentanol	1.74	1.61
629	3-pentanol	1.73	1.63
630	n-pentyl alcohol	3.35	2.83
631	isoamyl alcohol; 3-methyl-1-butanol	2.73	3.16
632	2-methyl-1-butanol	2.60	2.40
633	cyclohexanol	2.25	1.95
634	1-hexanol	2.74	2.69
635	2-hexanol	2.46	2.08
636	4-methyl-2-pentanol; methyl isobutyl carbinol	2.89	2.64
637	1-heptanol	2.21	1.84
638	dimethylpentanol; 2,3-dimethyl-1-pentanol	2.51	2.23
639	1-octanol	2.01	1.43
640	2-ethyl-1-hexanol	2.20	2.00
641	2-octanol	2.16	1.97
642	3-octanol	2.57	2.28
643	4-octanol	3.07	2.23
644	5-methyl-1-heptanol	1.95	1.79
645	trimethyl cyclohexanol	2.17	1.86
646	dimethylheptanol; 2,6-dimethyl-2-heptanol	1.07	0.94
647	2,6-dimethyl-4-heptanol	2.37	2.09
648	menthol	1.70	1.43
649	8-methyl-1-nonanol; isodecyl alcohol	1.23	1.06
650	1-decanol	1.22	1.06
651	3,7-dimethyl-1-octanol	1.42	1.20
652	trimethylnonanol, threo + erythro; 2,6,8-trimethyl-4-nonanol	1.55	1.33
	<i>Aldehydes</i>		
653	formaldehyde	8.97	9.46
654	acetaldehyde	6.84	6.54
655	propionaldehyde	7.89	7.08
656	2-methyl propanal	5.87	5.25
657	butanal	6.74	5.97
658	C4 aldehydes	6.74	5.97
659	2,2-dimethylpropanal; pivaldehyde	5.40	4.89
660	3-methylbutanal; isovaleraldehyde	5.52	4.97
661	pentanal; valeraldehyde	5.76	5.08
662	C5 aldehydes	5.76	5.08
663	glutaraldehyde	4.79	4.31
664	hexanal	4.98	4.35
665	C6 aldehydes	4.98	4.35
666	heptanal	4.23	3.69
667	C7 aldehydes	4.23	3.69
668	2-methyl-hexanal	3.97	3.54
669	octanal	3.65	3.16
670	C8 aldehydes	3.65	3.16
671	glyoxal	14.2	12.5

672	methyl glyoxal	16.2	16.5
673	acrolein	7.60	7.45
674	crotonaldehyde	10.0	9.39
675	methacrolein	6.23	6.01
676	hydroxyl-methacrolein	6.61	6.24
677	benzaldehyde	0.00	0.00
678	tolualdehyde	0.00	0.00
	<i>Carboxylic Acids and Oxides</i>		
679	carbon monoxide	0.06	0.05
680	ethylene oxide	0.04	0.03
681	propylene oxide	0.32	0.29
682	1,2-epoxy butane	1.02	0.91
683	formic acid	0.08	0.06
684	acetic acid	0.50	0.68
685	glycolic acid	2.67	2.38
686	peroxyacetic acid	12.6	0.54
687	acrylic acid	11.6	11.3
688	propionic acid	0.79	1.22
689	methacrylic acid	18.7	18.5
690	isobutyric acid	1.22	1.20
691	butanoic acid	1.78	1.82
692	malic acid	7.51	6.94
693	3-methyl butanoic acid	4.26	4.23
694	adipic acid; hexanedioic acid	3.37	3.08
695	2-ethyl hexanoic acid	3.49	3.32
696	methyl acrylate	12.2	11.4
697	vinyl acetate	3.26	3.20
698	2-methyl-3-butene-2-ol	5.12	4.91
699	ethyl acrylate	8.78	7.77
700	methyl methacrylate	15.8	15.6
701	ethyl methacrylate*	12.1	12.4
702	hydroxypropyl acrylate	5.56	4.90
703	n-butyl acrylate	5.52	5.02
704	isobutyl acrylate	5.05	4.72
705	butyl methacrylate	9.09	8.70
706	isobutyl methacrylate	8.99	8.62
707	α -terpineol	5.16	4.63
708	2-ethyl-hexyl acrylate	2.42	2.52
709	isobornyl methacrylate	8.64	5.51
710	furan	16.5	9.15
711	2-methyl furan*	8.02	8.30
712	3-methyl furan*	6.64	6.90
713	2-ethyl furan*	6.85	7.09
714	2,5-dimethyl furan*	7.60	7.88
	<i>Esters of Carboxylic Acids</i>		
715	methyl formate	0.06	0.06
716	ethyl formate	0.52	0.48
717	methyl acetate	0.07	0.07
718	gamma-butyrolactone	1.15	0.96
719	ethyl acetate	0.64	0.63
720	methyl propionate	0.71	0.66
721	n-propyl formate	0.93	0.78
722	isopropyl formate	0.42	0.37
723	ethyl propionate	0.79	0.77

724	isopropyl acetate	1.12	1.07
725	methyl butyrate	1.18	1.09
726	methyl isobutyrate	0.70	0.61
727	n-butyl formate	0.95	0.83
728	propyl acetate	0.87	0.78
729	ethyl butyrate	1.25	1.17
730	isobutyl acetate	0.67	0.62
731	methyl pivalate	0.39	0.35
732	n-butyl acetate	0.89	0.83
733	n-propyl propionate	0.93	0.84
734	sec-butyl acetate	1.43	1.32
735	tert-butyl acetate; tBAc	0.20	0.18
736	methyl pentanoate; methyl		
	valerate*	1.00	1.05
737	butyl propionate	0.89	0.84
738	amyl acetate; n-pentyl acetate	0.96	0.84
739	n-propyl butyrate	1.17	1.05
740	isoamyl acetate; 3-methyl-butyl		
	acetate	1.18	1.09
741	2-methyl-1-butyl acetate	1.17	1.08
742	methyl hexanoate*	0.96	1.02
743	ethyl 3-ethoxy propionate	3.61	3.58
744	hexyl acetates*	0.74	0.80
745	2,3-dimethylbutyl acetate	0.84	0.75
746	2-methylpentyl acetate	1.11	0.98
747	3-methylpentyl acetate	1.31	1.07
748	4-methylpentyl acetate	0.92	0.82
749	isobutyl isobutyrate	0.61	0.60
750	n-butyl butyrate	1.12	1.08
751	n-hexyl acetate	0.87	0.69
752	methyl amyl acetate; 4-methyl-		
	2-pentanol acetate	1.46	1.35
753	n-pentyl propionate	0.79	0.71
754	methyl heptanoate*	0.76	0.82
755	2,4-dimethylpentyl acetate	0.98	0.92
756	2-methylhexyl acetate	0.89	0.69
757	3-ethylpentyl acetate	1.24	1.10
758	3-methylhexyl acetate	1.01	0.89
759	4-methylhexyl acetate	0.91	0.82
760	5-methylhexyl acetate	0.79	0.59
761	isoamyl isobutyrate	0.89	0.82
762	n-heptyl acetate	0.73	0.65
763	methyl octanoate*	0.64	0.69
764	2,4-dimethylhexyl acetate	0.93	0.76
765	2-ethyl-hexyl acetate	0.79	0.66
766	3,4-dimethyl-hexyl acetate	1.16	0.87
767	3,5-dimethyl-hexyl acetate	1.09	0.99
768	3-ethyl-hexyl acetate	1.03	0.91
769	3-methyl-heptyl acetate	0.76	0.67
770	4,5-dimethyl-hexyl acetate	0.86	0.68
771	4-methyl-heptyl acetate	0.72	0.66
772	5-methyl-heptyl acetate	0.73	0.61
773	n-octyl acetate	0.64	0.57
774	methyl nonanoate*	0.54	0.59
775	2,3,5-trimethyl-hexyl acetate	0.86	0.85
776	2,3-dimethyl-heptyl acetate	0.84	0.71
777	2,4-dimethyl-heptyl acetate	0.88	0.68
778	2,5-dimethyl-heptyl acetate	0.86	0.78

779	2-methyloctyl acetate	0.63	0.52
780	3,5-dimethyl-heptyl acetate	1.01	0.81
781	3,6-dimethyl-heptyl acetate	0.87	0.78
782	3-ethyl-heptyl acetate	0.71	0.63
783	4,5-dimethyl-heptyl acetate	0.96	0.69
784	4,6-dimethyl-heptyl acetate	0.83	0.78
785	4-methyloctyl acetate	0.68	0.61
786	5-methyloctyl acetate	0.67	0.56
787	n-nonyl acetate	0.58	0.52
788	methyl decanoate*	0.48	0.53
789	3,6-dimethyl-octyl acetate	0.88	0.79
790	3-isopropyl-heptyl acetate	0.71	0.54
791	4,6-dimethyl-octyl acetate	0.85	0.76
792	methyl undecanoate*	0.45	0.50
793	3,5,7-trimethyl-octyl acetate	0.83	0.66
794	3-ethyl-6-methyl-octyl acetate	0.80	0.63
795	4,7-dimethyl-nonyl acetate	0.64	0.50
796	methyl dodecanoate; methyl		
	laurate	0.53	0.47
797	2,3,5,7-tetramethyl-octyl acetate	0.74	0.62
798	3,5,7-trimethyl-nonyl acetate	0.76	0.62
799	3,6,8-trimethyl-nonyl acetate	0.72	0.59
800	methyl tridecanoate*	0.40	0.45
801	2,4,6,8-tetramethyl-nonyl acetate	0.63	0.51
802	3-ethyl-6,7-dimethyl-nonyl		
	acetate	0.76	0.61
803	4,7,9-trimethyl-decyl acetate	0.55	0.42
804	methyl myristate; methyl		
	tetradecanoate	0.47	0.43
805	methyl cis-9-pentadecenoate*	1.63	1.80
806	methyl cis-9-hexadecenoate;		
	methyl palmitoleate*	1.63	1.70
807	methyl pentadecanoate*	0.42	0.47
808	2,3,5,6,8-pentamethyl-nonyl		
	acetate	0.74	0.65
809	3,5,7,9-tetramethyl-decyl		
	acetate	0.58	0.48
810	5-ethyl-3,6,8-trimethyl-nonyl		
	acetate	0.77	0.77
811	dimethyl carbonate; DMC	0.06	0.06
812	propylene carbonate	0.25	0.28
813	methyl lactate	2.75	2.67
814	2-methoxyethyl acetate	1.18	1.15
815	ethyl lactate	2.71	2.48
816	methyl isopropyl carbonate	0.69	0.62
817	1-methoxy-2-propyl acetate	1.71	1.70
818	2-ethoxyethyl acetate	1.90	1.84
819	2-methoxy-1-propyl acetate	1.12	1.12
820	methoxypropanol acetate	1.97	1.86
821	dimethyl succinate	0.23	0.23
822	ethylene glycol diacetate	0.72	0.66
823	1,2-propylene glycol diacetate	0.94	0.61
824	diisopropyl carbonate	1.04	0.98
825	dimethyl glutarate	0.51	0.42
826	2-butoxyethyl acetate	1.67	1.62
827	dimethyl adipate	1.95	1.80
828	2-(2-ethoxyethoxy) ethyl		
	acetate	1.50	1.48

829	dipropylene glycol n-propyl ether isomer #1	2.13	2.00
830	dipropylene glycol methyl ether acetate isomer #1	1.41	1.38
831	dipropylene glycol methyl ether acetate isomer #2	1.58	1.52
832	dipropylene glycol methyl ether acetate isomers	1.49	1.45
833	glyceryl triacetate	0.57	0.55
834	2-(2-butoxyethoxy) ethyl acetate	1.38	1.38
835	substituted C7 ester (C12)	0.92	0.81
836	1-hydroxy-2,2,4-trimethylpentyl-3-isobutyrate	0.92	0.89
837	3-hydroxy-2,2,4-trimethylpentyl-1-isobutyrate	0.88	0.77
838	2,2,4-trimethyl-1,3-pentanediol monoisobutyrate and isomers (texanol ®)	0.89	0.81
839	substituted C9 ester (C12)	0.89	0.81
840	dimethyl sebacate	0.48	0.43
841	diisopropyl adipate	1.42	1.28
	<i>Glycols, Ethers, and Glycol Ethers</i>		
842	dimethyl ether	0.93	0.81
843	ethylene glycol	3.36	3.13
844	propylene glycol	2.75	2.58
845	dimethoxy methane	1.04	0.94
846	glycerol	3.27	3.15
847	1,3-butanediol*	3.21	3.36
848	1,2-butanediol	2.21	2.52
849	1,4-butanediol	3.22	2.72
850	2,3-butanediol*	4.23	4.38
851	pentaerythritol	2.42	2.17
852	1,2-dihydroxyhexane	2.75	2.55
853	2-methyl-2,4-pentanediol	1.04	1.45
854	2-ethyl-1,3-hexanediol	2.62	2.05
855	trimethylene oxide	5.22	4.56
856	1,3-dioxolane	5.47	4.96
857	2-methoxy ethanol	2.98	2.93
858	tetrahydrofuran	4.95	4.31
859	diethyl ether	4.01	3.76
860	1,4-dioxane	2.71	2.62
861	1-methoxy-2-propanol	2.62	2.44
862	2-ethoxy-ethanol	3.78	3.71
863	2-methoxy-1-propanol	3.01	3.01
864	3-methoxy-1-propanol	4.01	3.84
865	diethylene glycol	3.55	3.35
866	α-methyl tetrahydrofuran	4.62	3.97
867	tetrahydropyran	3.81	3.22
868	ethyl isopropyl ether	3.86	3.74
869	methyl n-butyl ether	3.66	3.15
870	methyl t-butyl ether	0.78	0.73
871	tetrahydro-2-furanmethanol; tetrahydrofurfuryl alcohol	3.54	3.31
872	2,2-dimethoxy-propane	0.52	0.48
873	1-ethoxy-2-propanol	3.25	3.09

874	2-propoxy-ethanol	3.52	3.30
875	3-ethoxy-1-propanol	4.24	4.09
876	3-methoxy-1-butanol	0.97	3.87
877	2-(2-methoxyethoxy) ethanol	2.90	2.66
878	di-n-propyl ether	3.24	3.08
879	ethyl n-butyl ether	3.86	3.48
880	ethyl tert-butyl ether	2.11	2.01
881	methyl tert-amyl ether; TAME	2.14	1.69
882	diisopropyl ether	3.56	3.52
883	ethylene glycol diethyl ether;		
	1,2-diethoxyethane	2.84	2.95
884	acetal (1,1-diethoxyethane)	3.68	3.58
885	1-propoxy-2-propanol; propylene		
	glycol n-propyl ether	2.86	2.68
886	2-butoxy-ethanol	2.90	2.90
887	3-methoxy-3-methyl-butanol	1.74	2.88
888	n-propoxy-propanol	3.84	3.77
889	2-(2-ethoxyethoxy) ethanol	3.19	3.26
890	dipropylene glycol isomer		
	(1-[2-hydroxypropyl]-2-		
	propanol)	2.48	2.31
891	triethylene glycol	3.41	3.25
892	4,4-diethyl-3-oxahexane; tert-		
	amyl ethyl ether; TAEE	2.03	1.95
893	1-tert-butoxy-2-propanol	1.71	1.61
894	2-tert-butoxy-1-propanol	1.81	1.81
895	n-butoxy-2-propanol; propylene		
	glycol n-butyl ether	2.70	2.72
896	2-(2-propoxyethoxy) ethanol	3.00	2.85
897	dipropylene glycol methyl		
	ether; 1-methoxy-2-(2-		
	hydroxypropoxy)-propane	2.21	1.98
898	dipropylene glycol methyl		
	ether; 2-(2-methoxypropoxy)-		
	1-propanol	2.70	2.58
899	2-[2-(2-methoxyethoxy) ethoxy]		
	ethanol	2.62	2.58
900	2-butyl tetrahydrofuran	2.53	2.13
901	di-isobutyl ether	1.29	1.20
902	di-n-butyl ether	3.17	2.84
903	2-n-hexyloxyethanol	2.45	2.09
904	2,2,4-trimethyl-1,3-pentanediol	1.74	1.54
905	2-methoxy-1-(2-methoxy-1-		
	methylethoxy)-propane;		
	dipropylene glycol dimethyl		
	ether	2.09	2.02
906	2-(2-butoxyethoxy)-ethanol	2.87	2.39
907	dipropylene glycol ethyl ether	2.75	2.72
908	2-[2-(2-ethoxyethoxy) ethoxy]		
	ethanol	2.66	2.46
909	tetraethylene glycol	2.84	2.51
910	2-(2-ethylhexyloxy) ethanol	1.71	1.55
911	1-(butoxyethoxy)-2-propanol	2.08	1.93
912	2-[2-(2-propoxyethoxy) ethoxy]		
	ethanol	2.46	2.17
913	tripropylene glycol*	2.07	2.18
914	2,5,8,11-tetraoxatridecan-13-ol	2.15	1.97
915	di-n-pentyl ether	2.64	2.15

916	2-(2-hexyloxyethoxy) ethanol	2.03	1.84
917	glycol ether DPnB; dipropylene glycol n-butyl ether; 1-(2-butoxy-1- methylethoxy)-2-propanol)	1.96	1.83
918	2-[2-(2-butoxyethoxy) ethoxy] ethanol	2.24	1.96
919	tripropylene glycol monomethyl ether	1.90	1.92
920	diethylene glycol mono- (2-ethylhexyl) ether*	1.46	1.56
921	tripropylene glycol n-butyl ether*	1.55	1.64
	<i>Ketones</i>		
922	acetone	0.43	0.36
923	cyclobutanone	0.68	0.62
924	methyl ethyl ketone	1.49	1.48
925	cyclopentanone	1.43	1.15
926	C5 cyclic ketones	1.43	1.15
927	2-pentanone	3.07	2.81
928	3-pentanone	1.45	1.24
929	C5 ketones	3.07	2.81
930	methyl isopropyl ketone	1.64	1.65
931	2,4-pentanedione	1.02	1.01
932	cyclohexanone	1.61	1.35
933	C6 cyclic ketones	1.61	1.35
934	4-methyl-2-pentanone; methyl isobutyl ketone	4.31	3.88
935	methyl n-butyl ketone	3.55	3.14
936	methyl tert-butyl ketone	0.78	0.65
937	C6 ketones	3.55	3.14
938	C7 cyclic ketones	1.41	1.18
939	2-heptanone	2.80	2.36
940	2-methyl-3-hexanone	1.79	1.53
941	di-isopropyl ketone	1.63	1.31
942	C7 ketones	2.80	2.36
943	5-methyl-2-hexanone	2.10	2.41
944	3-methyl-2-hexanone	2.81	2.55
945	C8 cyclic ketones	1.25	1.05
946	2-octanone	1.66	1.40
947	C8 ketones	1.66	1.40
948	C9 cyclic ketones	1.13	0.94
949	2-propyl cyclohexanone	1.71	1.54
950	4-propyl cyclohexanone	2.08	1.85
951	2-nonanone	1.30	1.08
952	di-isobutyl ketone; 2,6- dimethyl-4-heptanone	2.94	2.68
953	C9 ketones	1.30	1.08
954	C10 cyclic ketones	1.02	0.86
955	2-decanone	1.06	0.90
956	C10 ketones	1.06	0.90
957	2,6,8-trimethyl-4-nonanone; isobutyl heptyl ketone	1.86	1.66
958	biacetyl; diacetyl; butanedione	20.7	20.0
959	methylvinyl ketone	8.73	9.65
960	mesityl oxide; 2-methyl-2- penten-4-one	17.3	6.51

961	isophorone; 3,5,5-trimethyl-2-cyclohexenone	10.5	4.63
962	1-nonene-4-one	3.39	3.14
963	hydroxy acetone	3.08	3.23
964	dihydroxy acetone	4.02	3.99
965	methoxy-acetone	2.14	2.03
966	diacetone alcohol	0.68	0.60
	<i>Phenols</i>		
967	phenol	1.82	2.76
968	C7 alkyl phenols	2.34	2.40
969	m-cresol	2.34	2.40
970	p-cresol	2.34	2.40
971	o-cresol	2.34	2.40
972	4-vinyl phenol	1.43	1.50
973	2,4-dimethyl phenol*	2.07	2.12
974	2,5-dimethyl phenol*	2.07	2.12
975	3,4-dimethyl phenol*	2.07	2.12
976	2,3-dimethyl phenol*	2.07	2.12
977	2,6-dimethyl phenol*	2.07	2.12
978	C8 alkyl phenols	2.07	2.12
979	2,3,5-trimethyl phenol*	1.86	1.90
980	2,3,6-trimethyl phenol*	1.86	1.90
981	C9 alkyl phenols	1.86	1.90
982	C10 alkyl phenols	1.68	1.73
983	C11 alkyl phenols	1.54	1.58
984	C12 alkyl phenols	1.42	1.46
985	2-phenoxyethanol; ethylene glycol phenyl ether	3.61	4.49
986	1-phenoxy-2-propanol	1.73	1.60
987	2,6-di-tert-butyl-p-cresol*	1.15	1.18
	<i>Other Oxygenated Organics</i>		
988	glycolaldehyde*	4.96	5.10
989	lumped C5+ unsaturated carbonyl species*	6.18	6.38
990	benzyl alcohol*	4.98	5.11
991	methoxybenzene; anisole*	6.49	6.66
992	β -phenethyl alcohol; 2-phenyl ethyl alcohol*	4.41	4.53
993	phthalic anhydride*	2.50	2.58
994	methylparaben; 4-hydroxybenzoic acid, methyl ester*	1.66	1.71
995	cinnamic aldehyde*	4.68	4.84
996	cinnamic alcohol*	0.84	0.89
997	anethol; p-propenyl-anisole*	0.76	0.80
998	camphor*	0.45	0.49
999	citronellol; 3,7-dimethyl-6-octen-1-ol*	5.63	5.79
1000	hydroxycitronella*; hydroxycitronellal	2.50	2.61
1001	linalool*	5.28	5.43
1002	1,2-diacetyl benzene*	2.17	2.25
1003	geraniol*	4.97	5.12
1004	propylparaben*; 4-		

	hydroxybenzoic acid,		
	propyl ester	1.40	1.44
1005	diethyl phthalate*	1.56	1.62
1006	3,6,9,12-tetraoxa-hexadecan-		
	1-ol	1.90	1.72
1007	triethyl citrate*	0.66	0.70
1008	amyl cinnamal*	3.06	3.16
1009	hexyl cinnamal*	2.86	2.96
1010	2-ethyl-hexyl benzoate*	0.93	0.98
1011	dibutyl phthalate*	1.20	1.25
1012	2,2,4-trimethyl-1,3-pentanediol		
	diisobutyrate*	0.34	0.38
1013	methyl hexadecanoate; methyl		
	palmitate*	0.40	0.44
1014	methyl cis-9-heptadecenoate*	1.56	1.62
1015	methyl heptadecanoate; methyl		
	margarate*	0.38	0.42
1016	methyl linolenate; methyl		
	cis,cis,cis-9,12,15-		
	octadecatrienoate*	1.77	2.32
1017	methyl linoelate; methyl		
	cis,cis-9,12-		
	octadecadienoate*	1.48	1.84
1018	methyl cis-9-octadecenoate;		
	methyl oleate*	1.48	1.54
1019	methyl octadecanoate;		
	methyl stearate*	0.36	0.40
	<i>Other Organic Compounds</i>		
1020	methylamine*	7.29	7.70
1021	methyl chloride	0.03	0.04
1022	methyl nitrite*	10.50	10.84
1023	nitromethane	7.86	0.07
1024	carbon disulfide*	0.23	0.25
1025	dichloromethane	0.07	0.04
1026	methyl bromide	0.02	0.02
1027	chloroform	0.03	0.02
1028	methyl iodide*	0.00	0.00
1029	carbon tetrachloride	0.00	0.00
1030	chloropicrin; trichloro-nitro-		
	methane*	1.80	1.85
1031	methylene bromide	0.00	0.00
1032	acetylene	1.25	0.95
1033	dimethyl amine	9.37	3.17
1034	ethyl amine	7.80	5.78
1035	ethanolamine	5.97	6.81
1036	vinyl chloride	2.92	2.83
1037	ethyl chloride	0.25	0.29
1038	1,1-difluoroethane; HFC-152a	0.00	0.02
1039	methyl isothiocyanate*; MITC	0.31	0.32
1040	nitroethane	12.79	0.06
1041	dimethyl sulfoxide; DMSO	6.90	6.68
1042	chloroacetaldehyde*	12.00	12.30
1043	1,1-dichloroethene*	1.69	1.79
1044	trans-1,2-dichloroethene	0.81	1.70
1045	cis-1,2-dichloroethene*	1.65	1.70
1046	1,1-dichloroethane	0.10	0.07
1047	1,2-dichloroethane	0.10	0.21

1048	1,1,1,2-tetrafluoroethane; HFC-134a	0.00	0.00
1049	ethyl bromide	0.11	0.13
1050	trichloroethylene; TCE	0.60	0.64
1051	1,1,1-trichloroethane	0.00	0.01
1052	1,1,2-trichloroethane	0.06	0.09
1053	perchloroethylene; perc	0.04	0.03
1054	1,2-dibromoethane	0.05	0.10
1055	methyl acetylene	6.45	6.72
1056	acrylonitrile*	2.16	2.24
1057	trimethyl amine	7.06	6.32
1058	isopropyl amine*	6.93	7.23
1059	n-methyl acetamide**	19.70	20.19
1060	1-amino-2-propanol	13.42	5.42
1061	3-chloropropene*	11.98	12.22
1062	1-nitropropane	16.16	0.22
1063	2-nitropropane	16.16	0.11
1064	chloroacetone*	9.22	9.41
1065	trans-1,3-dichloropropene*	4.92	5.03
1066	cis-1,3-dichloropropene*	3.61	3.70
1067	1,3-dichloropropene mixture*	4.19	4.29
1068	1,2-dichloropropane*	0.28	0.29
1069	trans-1,3,3,3-tetrafluoropropene*; trans-HFO-1234ze	0.09	0.10
1070	2,3,3,3-tetrafluoropropene*; HFO-1234yf	0.27	0.28
1071	n-propyl bromide	0.35	0.42
1072	1,1,1,3,3-pentafluoropropane*; HFC-245fa	0.00	0.00
1073	3,3-dichloro-1,1,1,2,2-pentafluoropropane; HCFC-225ca*	0.00	0.00
1074	1,3-dichloro-1,1,2,2,3-pentafluoropropane; HCFC-225cb*	0.00	0.00
1075	1,3-butadiyne*	5.53	5.76
1076	1-buten-3-yne; vinyl acetylene*	10.15	10.48
1077	2-butyne	16.33	16.32
1078	ethyl acetylene	6.20	6.11
1079	tert-butyl amine*	0.00	0.00
1080	morpholine	15.43	1.98
1081	ethyl methyl ketone oxime; methyl ethyl ketoxime*	22.04	1.58
1082	dimethylaminoethanol; DMAE	4.76	5.62
1083	2-amino-1-butanol*	4.78	4.98
1084	2-amino-2-methyl-1-propanol; AMP	15.08	0.25
1085	1-chlorobutane*	1.04	1.10
1086	diethylenetriamine**	13.03	15.53
1087	diethanol-amine	4.05	2.47
1088	2-(chloro-methyl)-3-chloro-propene	1.13	7.00
1089	n-butyl bromide	0.60	0.82
1090	1,1,1,3,3-pentafluorobutane; HFC-365mfc*	0.00	0.00
1091	n-methyl-2-pyrrolidone	2.56	2.41
1092	2-amino-2-ethyl-1,3-propanediol*	0.00	0.78
1093	hydroxyethylethylene urea**	14.75	11.22
1094	methoxy-perfluoro-n-butane*;		

	methyl-nonafluoro-butyl ether;		
	HFE-7100 isomer	0.00	0.00
1095	methoxy-perfluoro-isobutene*;		
	methyl-nonafluoro-isobutyl		
	ether; HFE-7100 isomer	0.00	0.00
1096	1,1,1,2,2,3,4,5,5,5-decafluoro-		
	pentane; HFC-43-10mee*	0.00	0.00
1097	triethyl amine	16.60	3.84
1098	triethylene diamine*	3.31	3.46
1099	monochlorobenzene	0.36	0.32
1100	nitrobenzene	0.07	0.06
1101	p-dichlorobenzene	0.20	0.18
1102	o-dichlorobenzene*	0.17	0.18
1103	triethanolamine*	2.76	4.21
1104	hexamethyl-disiloxane*	0.00	0.00
1105	hydroxymethyl-disiloxane*	0.00	0.00
1106	hexafluoro-benzene*	0.05	0.05
1107	ethoxy-perfluoro-n-butane*; ethyl		
	nonafluoro-butyl ether; HFE-		
	7200 isomer	0.01	0.01
1108	ethoxy-perfluoro-isobutane*;		
	ethyl nonafluoro-isobutyl ether;		
	HFE-7200 isomer	0.01	0.01
1109	perfluoro-n-hexane*	0.00	0.00
1110	2-chlorotoluene*	2.82	2.92
1111	m-nitrotoluene*	0.48	0.50
1112	benzotrifluoride	0.26	0.29
1113	p-trifluoromethyl-chloro-benzene	0.11	0.13
1114	p-toluene isocyanate	0.93	1.06
1115	3-(chloromethyl)-heptane*	0.88	0.95
1116	cyclosiloxane D4;		
	octamethylcyclotetrasiloxane*	0.00	0.00
1117	cumene hydroperoxide; 1-methyl-		
	1-phenylethylhydroperoxide**	12.61	9.08
1118	2,4-toluene diisocyanate*	0.00	0.00
1119	2,6-toluene diisocyanate*	0.00	0.00
1120	toluene diisocyanate (mixed		
	isomers)*	0.00	0.00
1121	molinate; S-ethyl hexahydro-1H-		
	azepine-1-carbothioate*	1.43	1.51
1122	EPTC; S-ethyl dipropyl-		
	thiocarbamate*	1.58	1.67
1123	triisopropanolamine*	2.60	2.70
1124	dexpanthenol; pantothenylol**	9.35	6.15
1125	pebulate; S-propyl butylethylthio-		
	carbamate*	1.58	1.67
1126	cyclosiloxane D5; decamethyl-		
	cyclopentasiloxane*	0.00	0.00
1127	thiobencarb; S-[4-chlorobenzyl]		
	N,N-diethylthiolcarbamate*	0.65	0.68
1128	methylene diphenylene		
	diisocyanate	0.79	0.89
1129	lauryl pyrrolidone*	0.89	0.94
	<i>Complex Mixtures</i>		
1130	base ROG mixture	3.71	3.60
1131	kerosene*	1.46	1.62
1132	oxo-tridecyl acetate	0.67	0.55

1133	oxo-dodecyl acetate	0.72	0.59
1134	oxo-decyl acetate	0.83	0.70
1135	oxo-nonyl acetate	0.85	0.72
1136	oxo-octyl acetate	0.96	0.81
1137	oxo-heptyl acetate	0.97	0.83
1138	oxo-hexyl acetate	1.03	0.86
1139	turpentine*	4.12	4.28
1140	soy methyl esters; alkyl C16-C18		
	methyl esters*	1.52	1.58

*This reactive organic compound was added to the Table of MIR Values on October 2, 2010, and may be used in aerosol coating products after this date, as specified in section 94522(i)(3)(B), title 17, California Code of Regulations

**ULMIR (as defined in section 94521 (a)(81), title 17, California Code of Regulations.)

Note: Authority cited: Sections 39600, 39601 and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000 and 41712, Health and Safety Code.

HISTORY

1. New subchapter 8.6, article 1 (sections 94700-94701) and section filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
2. Amendment filed 6-7-2004; operative 7-7-2004 (Register 2004, No. 24).
3. Repealer and new section filed 9-2-2010; operative 10-2-2010 (Register 2010, No. 36).
4. Amendment filed 9-17-2014; operative 1-1-2015 (Register 2014, No. 38).

This database is current through 8/12/16 Register 2016, No. 33

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BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

Barclays Official California Code of Regulations [Currentness](#)

Title 17. Public Health

Division 3. Air Resources

Chapter 1. Air Resources Board

Subchapter 8.6. Maximum Incremental Reactivity

Article 1. Tables of Maximum Incremental Reactivity (MIR) Values

17 CCR § 94701

§ 94701. MIR Values for Hydrocarbon Solvents.

(a) Aliphatic Hydrocarbon Solvents

	<i>Average</i>		<i>MIR</i>	<i>MIR</i>
	<i>Boiling</i>		<i>Value</i>	<i>Value</i>
	<i>Point*</i>		<i>(July 18,</i>	<i>October 2,</i>
<i>Bin</i>	<i>(degrees F)</i>	<i>Criteria</i>	<i>2001)</i>	<i>2010</i>
1	80-205	Alkanes (<2%Aromatics)	2.08	1.42
2	80-205	N- & Iso-Alkanes (≥90% and <2% Aromatics)	1.59	1.31
3	80-205	Cyclo-Alkanes (≥90% and <2%Aromatics)	2.52	1.63
4	80-205	Alkanes (2 to <8%Aromatics)	2.24	1.47
5	80-205	Alkanes (8 to 22% Aromatics)	2.56	1.56
6	>205-340	Alkanes (<2% Aromatics)	1.41	1.17
7	>205-340	N- & Iso-Alkanes (≥90% and <2%Aromatics)	1.17	1.03
8	>205-340	Cyclo-Alkanes (≥90% and <2%Aromatics)	1.65	1.44
9	>205-340	Akanes (2 to <8% Aromatics)	1.62	1.44
10	>205-340	Alkanes (8 to 22% Aromatics)	2.03	1.98
11	>340-460	Alkanes (<2%Aromatics)	0.91	0.70
12	>340-460	N- & Iso-Alkanes (≥90% and <2%Aromatics)	0.81	0.62
13	>340-460	Cyclo-Alkanes (≥90% and <2%Aromatics)	1.01	0.86
14	>340-460	Alkanes (2 to <8% Aromatics)	1.21	0.99
15	>340-460	Alkanes (8 to 22% Aromatics)	1.82	1.57
16	>460-580	Alkanes (<2%Aromatics)	0.57	0.52
17	>460-580	N- & Iso-Alkanes (≥90% and <2% Aromatics)	0.51	0.48
18	>460-580	Cyclo-Alkanes (≥90% and <2%Aromatics)	0.63	0.60
19	>460-580	Alkanes (2 to <8% Aromatics)	0.88	0.66
20	>460-580	Alkanes (8 to 22% Aromatics)	1.49	0.95

*Average Boiling Point = (Initial Boiling Point + Dry Point) / 2

(b) Aromatic Hydrocarbon Solvents

		<i>MIR</i>	<i>MIR</i>
	<i>Boiling</i>	<i>Value</i>	<i>Value</i>

	<i>Range</i>		<i>(July 18,</i>	<i>October 2,</i>
<i>Bin</i>	<i>(degrees F)</i>	<i>Criteria</i>	<i>2001)</i>	<i>2010</i>
21	280-290	Aromatic Content (≥98%)	7.37	7.64
22	320-350	Aromatic Content (≥98%)	7.51	7.60
23	355-420	Aromatic Content (≥98%)	8.07	6.85
24	450-535	Aromatic Content (≥98%)	5.00	3.82

Note: Authority cited: Sections 39600, 39601 and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000 and 41712, Health and Safety Code.

HISTORY

1. New section filed 6-18-2001; operative 7-18-2001 (Register 2001, No. 25).
2. Amendment filed 9-2-2010; operative 10-2-2010 (Register 2010, No. 36).

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17 CCR § 94701, 17 CA ADC § 94701

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FINAL REGULATION ORDER

California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4

(Note: The entire text of sections 95665, 95666, 95667, 95668, 95669, 95670, 95671, 95672, 95673, 95674, 95675, 95676, and 95677 set forth below is new language in “normal type” proposed to be added to title 17, California Code of Regulations.)

Adopt new Subarticle 13, and sections 95665, 95666, 95667, 95668, 95669, 95670, 95671, 95672, 95673, 95674, 95675, 95676, 95677, Appendix A, Appendix B, and Appendix C, title 17, California Code of Regulations, to read as follows:

Subarticle 13: Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities

§ 95665. Purpose and Scope.

The purpose of this subarticle is to establish greenhouse gas emission standards for crude oil and natural gas facilities located in sectors identified in section 95666. This subarticle is designed to serve the purposes of the California Global Warming Solutions Act, AB 32, as codified in sections 38500-38599 of the Health and Safety Code.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95666. Applicability.

- (a) This subarticle applies to owners or operators of equipment and components listed in section 95668 located within California, including California waters, that are associated with facilities in the sectors listed below, regardless of emissions level:
 - (1) Onshore and offshore crude oil or natural gas production; and,
 - (2) Crude oil, condensate, and produced water separation and storage; and,
 - (3) Natural gas underground storage; and,
 - (4) Natural gas gathering and boosting stations; and,
 - (5) Natural gas processing plants; and,
 - (6) Natural gas transmission compressor stations.
- (b) Owners and operators must ensure that their facilities, equipment, and components comply at all times with all requirements of this subarticle, including all of the standards and requirements identified in section 95668. Owners and operators are jointly and severally liable for compliance with this subarticle.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95667. Definitions.

(a) For the purposes of this subarticle, the following definitions apply:

- (1) "Air district or local air district" means the local Air Quality Management District or the local Air Pollution Control District.
- (2) "Air Resources Board or ARB" means the California Air Resources Board.
- (3) "API gravity" means a scale used to reflect the specific gravity (SG) of a fluid such as crude oil, condensate, produced water, or natural gas. The API gravity is calculated as $[(141.5/SG) - 131.5]$, where SG is the specific gravity of the fluid at 60°F, and where API refers to the American Petroleum Institute.
- (4) "Blowout" means the uncontrolled flow of gas, liquids, or solids (or a mixture thereof) from a well onto the surface.
- (5) "Centrifugal compressor" means equipment that increases the pressure of natural gas by centrifugal action through an impeller. Screw, sliding vane, and liquid ring compressors are not centrifugal compressors for the purpose of this subarticle.
- (6) "Centrifugal compressor seal" means a wet or dry seal around the compressor shaft where the shaft exits the compressor case.
- (7) "Circulation tank" means a tank or portable tank used to circulate, store, or hold liquids or solids from a crude oil or natural gas well during or following a well stimulation treatment but prior to the well being put into production.
- (8) "Commercial quality natural gas" means a mixture of gaseous hydrocarbons with at least 80 percent methane by volume and less than 10 percent by weight volatile organic compounds and meets the criteria specified in Public Utilities Commission General Order 58-A (November 10, 2016), which is incorporated herein by reference.
- (9) "Component" means a valve, fitting, flange, threaded-connection, process drain, stuffing box, pressure-vacuum valve, pressure-relief device, pipes, seal fluid system, diaphragm, hatch, sight-glass, meter, open-ended line, well casing, natural gas powered pneumatic device, natural gas powered pneumatic pump, or reciprocating compressor rod packing or seal.
- (10) "Condensate" means hydrocarbon or other liquid, excluding steam, either produced or separated from crude oil or natural gas during production and which condenses due to changes in pressure or temperature.

- (11) "Continuous bleed" means the continuous venting of natural gas from a gas powered pneumatic device to the atmosphere. Continuous bleed pneumatic devices must vent continuously in order to operate.
- (12) "Critical component" means any component that would require the shutdown of a critical process unit if that component was shutdown or disabled.
- (13) "Critical process unit" means a process unit or group of components that must remain in service because of its importance to the overall process that requires it to continue to operate, and has no equivalent equipment to replace it or cannot be bypassed, and it is technically infeasible to repair leaks from that process unit without shutting it down and opening the process unit to the atmosphere.
- (14) "Crude oil" means any of the naturally occurring liquids and semi-solids found in rock formations composed of complex mixtures of hydrocarbons ranging from one to hundreds of carbon atoms in straight and branched chain rings.
- (15) "Crude oil and produced water separation and storage" means all activities associated with separating, storing or holding of emulsion, crude oil, condensate, or produced water at facilities to which this subarticle applies.
- (16) "Emissions" means the discharge of natural gas into the atmosphere.
- (17) "Emulsion" means any mixture of crude oil, condensate, or produced water with varying quantities of natural gas entrained in the liquids.
- (18) "Equipment" means any stationary or portable machinery, object, or contrivance covered by this subarticle, as set out by sections 95666 and 95668.
- (19) "Facility" means any building, structure, or installation to which this subarticle applies and which has the potential to emit natural gas. Facilities include all buildings, structures, or installations which:
 - (A) Are under the same ownership or operation, or which are owned or operated by entities which are under common control;
 - (B) Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and,
 - (C) Are located on one or more contiguous or adjacent properties.

- (20) "Flash or flashing" means a process during which gas dissolved in crude oil, condensate, or produced water under pressure is released when the liquids are subject to a decrease in pressure, such as when the liquids are transferred from an underground reservoir to the earth's surface or from a pressure vessel to an atmospheric tank.
- (21) "Flash analysis testing" means the determination of emissions from crude oil, condensate, and produced water by using sampling and laboratory procedures used for measuring the volume and composition of gases released from the liquids, including the molecular weight, the weight percent of individual compounds, and a gas-oil or gas-water ratio.
- (22) "Fuel gas system" means, for the purposes of this subarticle, any system that supplies natural gas as a fuel source to on-site natural gas powered equipment other than a vapor control device.
- (23) "Gas disposal well" means, for the purpose of this subarticle, any well that is used for the subsurface injection of natural gas for disposal.
- (24) "Gauge tank" means a tank found upstream of a separator and tank system which is used for measuring the amount of liquid produced by an oil well and receives or stores crude oil, condensate, or produced water.
- (25) "Inaccessible component" means any component located over fifteen feet above ground when access is required from the ground; or any component located over six (6) feet away from a platform or a permanent support surface when access is required from the platform.
- (26) "Intermittent bleed" means the intermittent venting of natural gas from a gas powered pneumatic device to the atmosphere. Intermittent bleed pneumatic devices may vent all or a portion of their supply gas when control action is necessary but do not vent continuously.
- (27) "Leak or fugitive leak" means the unintentional release of emissions at a rate greater than or equal to the leak thresholds specified in this subarticle.
- (28) "Leak detection and repair or LDAR" means the inspection of components to detect leaks of total hydrocarbons and the repair of components with leaks above the standards specified in this subarticle and within the timeframes specified in this subarticle.
- (29) "Liquids unloading" means an activity conducted with the use of pressurized natural gas to remove liquids that accumulate at the bottom of a natural gas well and obstruct gas flow.

- (30) "Natural gas" means a naturally occurring mixture or process derivative of hydrocarbon and non-hydrocarbon gases. Its constituents include the greenhouse gases methane and carbon dioxide, as well as heavier hydrocarbons. Natural gas may be field quality (which varies widely) or pipeline quality.
- (31) "Natural gas gathering and boosting station" means all equipment and components located within a facility fence line associated with moving natural gas to a natural gas processing plant, transmission pipeline, or distribution pipeline.
- (32) "Natural gas processing plant" means a plant used for the separation of natural gas liquids (NGLs) or non-methane gases from produced natural gas, or the separation of NGLs into one or more component mixtures.
- (33) "Natural gas transmission compressor station" means all equipment and components located within a facility fence line associated with moving natural gas from production fields or natural gas processing plants through natural gas transmission pipelines, or within natural gas underground storage fields.
- (34) "Natural gas transmission pipeline" means a state rate-regulated Intrastate pipeline, or a pipeline that falls under the "Hinshaw Exemption" as referenced in section 1(c) of the Natural Gas Act, 15 U.S.C. sections 717-717z.
- (35) "Natural gas underground storage" means all equipment and components associated with the temporary subsurface storage of natural gas in depleted crude oil or natural gas reservoirs or salt dome caverns. Natural gas storage does not include gas disposal wells.
- (36) "Non-associated gas" means natural gas that is not produced as a byproduct of crude oil production but may or may not be produced with condensate.
- (37) "Offshore" means all marine waters located within the boundaries of the State of California.
- (38) "Onshore" means all lands located within the boundaries of the State of California.
- (39) "Operator" means any entity, including an owner or contractor, having operational control of components or equipment, including leased, contracted, or rented components and equipment to which this subarticle applies.
- (40) "Optical gas imaging" means an instrument that makes emissions visible that may otherwise be invisible to the naked eye.

- (41) "Owner" means the entity that owns or operates components or equipment to which this subarticle applies.
- (42) "Photo-ionization detector or PID instrument" means a gas detection device that utilizes ultra-violet light to ionize gas molecules and is commonly employed in the detection of non-methane volatile organic compounds.
- (43) "Pneumatic device" means an automation device that uses natural gas, compressed air, or electricity to control a process.
- (44) "Pneumatic pump" means a device that uses natural gas or compressed air to power a piston or diaphragm in order to circulate or pump liquids.
- (45) "Pond" means an excavation that is used for the routine storage and/or disposal of produced water and which is not used for crude oil separation or processing.
- (46) "Portable equipment" means equipment designed for, and capable of, being carried or moved from one location to another and which it resides for less than 365 days. Portability indicators include, but are not limited to, the presence of wheels, skids, carrying handles, dolly, trailer, or platform.
- (47) "Portable pressurized separator" means a pressure vessel that can be moved from one location to another by attachment to a motor vehicle without having to be dismantled and is capable of separating and sampling crude oil, condensate, or produced water at the temperature and pressure of the separator required for sampling.
- (48) "Portable tank" means a tank that can be moved from one location to another by attachment to a motor vehicle without having to be dismantled.
- (49) "Pressure separator" means a pressure vessel used for the primary purpose of separating crude oil and produced water or for separating natural gas and produced water.
- (50) "Pressure vessel" means any hollow container used to hold gas or liquid and rated, as indicated by an ASME pressure rating stamp, and operated to contain normal working pressures of at least 15 psig without continuous vapor loss to the atmosphere.
- (51) "Production" means all activities associated with the production or recovery of emulsion, crude oil, condensate, produced water, or natural gas at facilities to which this subarticle applies.

- (52) "Produced water" means water recovered from an underground reservoir as a result of crude oil, condensate, or natural gas production and which may be recycled, disposed, or re-injected into an underground reservoir.
- (53) "Reciprocating natural gas compressor" means equipment that increases the pressure of natural gas by positive displacement of a piston in a compression cylinder and is powered by an internal combustion engine or electric motor with a horsepower rating supplied by the manufacturer.
- (54) "Reciprocating natural gas compressor rod packing" means a seal comprising of a series of flexible rings in machined metal cups that fit around the reciprocating compressor piston rod to create a seal limiting the amount of compressed natural gas that vents into the atmosphere.
- (55) "Reciprocating natural gas compressor seal" means any device or mechanism used to limit the amount of natural gas that vents from a compression cylinder into the atmosphere.
- (56) "Separator" means any tank or pressure separator used for the primary purpose of separating crude oil, produced water, and natural gas or for separating natural gas, condensate, and produced water. In crude oil production a separator may be referred to as a Wash Tank or as a three-phase separator. In natural gas production a separator may be referred to as a heater/separator.
- (57) "Separator and tank system" means the first separator in a crude oil or natural gas production system and any tank or sump connected directly to the first separator.
- (58) "Successful repair" means tightening, adjusting, or replacing equipment or a component for the purpose of stopping or reducing fugitive leaks below the minimum leak threshold or emission flow rate standard specified in this subarticle.
- (59) "Sump" means a lined or unlined surface impoundment or excavated depression in the ground which, during normal operations, is used to separate, store, or hold emulsion, crude oil, condensate, or produced water.
- (60) "Tank" means any container constructed primarily of non-earthen materials used for the purpose of storing, holding, or separating emulsion, crude oil, condensate, or produced water and that is designed to operate below 15 psig normal operating pressure.
- (61) "Unsafe-to-Monitor Components" means components installed at locations that would prevent the safe inspection or repair of components as defined by

U.S. Occupational Safety and Health Administration (OSHA) standards or in provisions for worker safety found in 29 CFR Part 1910.

- (62) "Vapor collection system" means equipment and components installed on pressure vessels, separators, tanks, or sumps including piping, connections, and flow-inducing devices used to collect and route emission vapors to a processing, sales gas, or fuel gas system; to a gas disposal well; or to a vapor control device.
- (63) "Vapor control device" means destructive or non-destructive equipment used to control emissions.
- (64) "Vapor control efficiency" means the ability of a vapor control device to control emissions, expressed as a percentage, which can be estimated by calculation or by measuring the total hydrocarbon concentration or mass flow rate at the inlet and outlet of the vapor control device.
- (65) "Vent or venting" means the intentional or automatic release of natural gas into the atmosphere from components, equipment, or activities described in this subarticle.
- (66) "Well" means a boring in the earth for the purpose of the following:
 - (A) Exploring for or producing oil or gas.
 - (B) Injecting fluids or gas for stimulating oil or gas recovery.
 - (C) Re-pressuring or pressure maintenance of oil or gas reservoirs.
 - (D) Disposing of oil field waste gas or liquids.
 - (E) Injection or withdraw of gas from an underground storage facility.

For the purpose of this subarticle, wells do not include active observation wells as defined in Public Resources Code Section 3008 subdivision (c), or wells that have been properly abandoned in accordance with Public Resources Code Section 3208.

- (67) "Well casing vent" means an opening on a well head that blocks or allows natural gas to flow to the atmosphere or to a vapor collection system.
- (68) "Well stimulation treatment" means the treatment of a well designed to enhance crude oil and natural gas production or recovery by increasing the permeability of the formation and as further defined by the Division of Oil, Gas, and Geothermal Resources SB 4 Well Stimulation Treatment Regulations, Title 14, Division 2, Chapter 4, Subchapter 2, Article 2, section 1761(a) (June 16, 2017), which is incorporated herein by reference.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95668. Standards.

The following standards apply at all times to facilities located in sectors listed in section 95666. The availability of an exemption for any particular component or facility, or compliance with one of the standards, does not exempt the owner or operator of a facility from complying with other standards for equipment or processes located at a facility.

(a) *Separator and Tank Systems*

- (1) Except as provided in section 95668(a)(2), the following requirements apply to separator and tank systems located at facilities located in sectors listed in section 95666.
- (2) The requirements of section 95668(a) do not apply to the following, provided that an owner or operator maintains, and makes available upon request by the ARB Executive Officer, records necessary to verify compliance with the following provisions:
 - (A) Separator and tank systems that receive an average of less than 50 barrels of crude oil or condensate per day. The average daily production shall be determined using the annual production certified reports submitted to the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) and dividing by 365 days per year.
 - (B) Separator and tank systems used in non-associated gas production that receive an average of less than 200 barrels of produced water per day. The average daily production shall be determined using the annual production certified reports submitted to the California Department of Conservation Division of Oil, Gas, and Geothermal Resources (DOGGR) and dividing by 365 days per year.
 - (C) Separator and tanks systems that are controlled as of January 1, 2018 with the use of a vapor collection system approved for use by a local air district.
 - (D) Separator and tank systems that are controlled using a gas blanket system to protect tanks from corrosion.
 - (E) Separators, tanks, and sumps that have contained crude oil, condensate, or produced water for 45 calendar days or fewer per calendar year provided that the owner or operator maintains, and can make available at the request of the ARB Executive Officer, a record of the number of days per year in which the separators, tanks, or sumps have contained liquid.

- (F) Tanks used for temporarily separating, storing, or holding liquids from any newly constructed well for up to 90 calendar days following initial production from that well provided that the tank is not used to circulate liquids from a well that has been subject to a well stimulation treatment.
 - (G) Tanks used for temporarily separating, storing, or holding liquids from wells undergoing rework or inspection for up to 90 calendar days provided they are not used to circulate liquids from a well that has been subject to a well stimulation treatment.
 - (H) Tanks that recover an average of less than 10 gallons per day of any petroleum waste product from equipment provided that the owner or operator maintains, and can make available at the request of the ARB Executive Officer, a record of the amount of liquid recovered. The average daily production shall be determined by using annual production and dividing by 365 days.
 - (I) Gauge tanks with a capacity of less than or equal to 100 barrels.
- (3) By January 1, 2018, owners or operators of existing separator and tank systems that are not controlled for emissions with the use of a vapor collection system shall conduct flash analysis testing of the crude oil, condensate, or produced water processed, stored, or held in the system.
 - (4) Beginning January 1, 2018, owners or operators of new separator and tank systems that are not controlled for emissions with the use of a vapor collection system shall conduct flash analysis testing of the crude oil, condensate, or produced water processed, stored, or held in the system within 90 days of initial system startup.
 - (5) Flash analysis testing shall be conducted as follows:
 - (A) Testing shall be conducted in accordance with the ARB Test Procedure for Determining Annual Flash Emission Rate of Gaseous Compounds from Crude Oil, Condensate, and Produced Water as described in Appendix C.
 - (B) Testing shall be conducted so that no crude oil, condensate, or produced water is diverted through a gauge tank that is open to the atmosphere and located upstream of the separator and tank system while testing is conducted.
 - (C) Calculate the annual methane emissions for the crude oil, condensate, and produced water using the test results provided by the laboratory.

- (D) Sum the annual methane emissions for the crude oil, condensate, and produced water.
 - (E) Maintain a record of flash analysis testing as specified in section 95672 and report the results to ARB as specified in section 95673.
 - (F) The ARB Executive Officer may request additional flash analysis testing or information in the event that the test results reported do not reflect representative results of similar systems.
 - (G) An owner or operator may perform additional flash analysis testing within a single calendar year and use the average of all results within the calendar year to determine the annual emissions from the separator and tank system, provided that all test reports used in the averaging calculation are maintained and reported as specified in sections 95672 and 95673 of this subarticle.
- (6) By January 1, 2019, owners or operators of an existing separator and tank system with an annual emission rate greater than 10 metric tons per year of methane shall control the emissions from the separator and tank system and uncontrolled gauge tanks located upstream of the separator and tank system with the use of a vapor collection system as specified in section 95671.
 - (7) Beginning January 1, 2018, owners or operators of new separator and tank systems with an annual emission rate greater than 10 metric tons per year of methane shall control the emissions from the separator and tank system and uncontrolled gauge tanks located upstream of the separator and tank system with the use of a vapor collection system as specified in section 95671 within 180 days of conducting flash analysis testing.
 - (8) Beginning January 1, 2019, owners or operators of a separator and tank system with an annual emission rate less than or equal to 10 metric tons per year of methane shall conduct flash analysis testing and reporting annually. If the results of three consecutive years of test results show that the system has an annual emission rate of less than or equal to 10 metric tons per year of methane the owner or operator may reduce the frequency of testing and reporting to once every five years.
 - (A) After the third consecutive year of testing, if the annual crude oil, condensate, or produced water throughput increases by more than 20 percent after one year from the date of previous flash analysis testing, then the annual methane emissions shall be recalculated using the laboratory reports from previous flash analysis testing.
 - (B) The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of the revised flash emission

calculation as specified in Appendix A, Table A1 and shall report the results to ARB within 90 days as specified in section 95673 of this subarticle.

(b) *Circulation Tanks for Well Stimulation Treatments*

- (1) By January 1, 2018, owners or operators of circulation tanks that conduct well stimulation treatments at facilities located in sectors listed in section 95666 shall implement a best practices management plan that is designed to limit methane emissions from circulation tanks, and shall make that plan available upon request by the ARB Executive Officer. Each plan must contain a list of best practices to address the following issue areas:
 - (A) Inspection practices to minimize emissions from circulation tanks.
 - (B) Practices to minimize venting of emissions from circulation tanks.
 - (C) Practices to minimize the duration of liquid circulation.
 - (D) Alternative practices to control vented and fugitive emissions.
- (2) By January 1, 2019, each owner or operator that conducts well stimulation treatments shall provide the ARB Executive Officer with a written report that details the results of equipment used to control emissions from circulation tanks with at least 95 percent vapor collection and control efficiency as follows:
 - (A) Each owner or operator, individually or as part of a group of owners and operators, must conduct a technology assessment and emissions testing in at least three different production fields from wells with different characteristics, such as depth of well or API gravity of crude oil or condensate.
 1. Individual owners or operators may conduct a technology assessment and emissions testing within one or more production fields and submit the results to ARB, which will be combined with technical assessments performed by other owners or operators, until at least three reports are submitted from three different production fields.
 - (B) Each owner or operator or group of owners and operators must notify the ARB Executive Officer prior to conducting the technology assessment and provide an explanation of equipment to be evaluated and plans for emissions testing.
 - (C) The technology assessment shall include, but is not limited to, the following information relating to vapor collection and control equipment:
 1. List of vapor collection and control equipment evaluated;

2. Test results demonstrating the functionality, emissions results, and technical feasibility of the equipment with written statements provided by equipment manufacturers;
 3. Costs of the equipment;
 4. Safety aspects related to the installation of the equipment;
 5. Test results that provide the fuel flow rate and Higher Heating Value of gas collected; and
 6. Test results that provide the report shall include the results of testing conducted by the owner or operator or equipment manufacturers that demonstrate the vapor collection and control efficiency and methane, criteria pollutant, and toxic air contaminant emissions before and after installation of the equipment.
- (3) The ARB Executive Officer will review the results of the technology assessment and emissions testing specified in section 95668(b)(2) and provide a determination on the installation of vapor collection and control equipment by no later than July 1, 2019.
- (4) By January 1, 2020, an owner or operator that conducts well stimulation treatments shall control emissions from circulation tanks with at least 95 percent vapor collection and control efficiency, unless the ARB Executive Officer makes a determination that controlling emissions is not possible for reasons identified in the technology assessment specified in section 95668(b)(2).
- (A) If ARB has not made a determination on the installation of vapor collection and control equipment by July 1, 2019, an owner or operator to whom that determination would apply may continue to operate circulation tanks at a level below 95 percent vapor collection and control efficiency until 180 days after ARB makes the late determination.

(c) *Reciprocating Natural Gas Compressors*

- (1) Except as provided in section 95668(c)(2), the following requirements apply to reciprocating natural gas compressors located at facilities located in sectors listed in section 95666.
- (2) The requirements of section 95668(c) do not apply to the following:
 - (A) Reciprocating natural gas compressors that operate less than 200 hours per calendar year provided that the owner or operator maintains, and makes available upon request by the ARB Executive Officer, a record of the operating hours per calendar year.
- (3) The following requirements apply to reciprocating natural gas compressors located at onshore or offshore crude oil or natural gas production facilities:

- (A) Beginning January 1, 2018, components on driver engines and compressors shall comply with the leak detection and repair requirements specified in section 95669; and,
- (B) The compressor rod packing or seal shall be tested during each inspection period in accordance with the leak detection and repair requirements specified in section 95669 while the compressor is running at normal operating temperature.
 - 1. If the measurement is not obtained because the compressor is not operating for the scheduled test date and the remainder of the inspection period, then testing shall be conducted within 7 calendar days of resumed operation. The owner or operator shall maintain, and makes available upon request by the ARB Executive Officer, a copy of operating records that document the compressor hours of operation and run dates in order to demonstrate compliance with this requirement.
- (C) Beginning January 1, 2019, compressor vent stacks used to vent rod packing or seal emissions shall be controlled with the use of a vapor collection system as specified in section 95671; or,
- (D) A compressor with a rod packing or seal leak concentration measured above the minimum leak threshold specified in section 95669 shall be successfully repaired within 30 calendar days from the date of initial measurement.
 - 1. A delay of repair may be granted by the ARB Executive Officer if the owner or operator can provide proof that the parts or equipment required to make necessary repairs have been ordered.
 - a. A delay of repair to obtain parts or equipment shall not exceed 30 calendar days, or 60 days from the date from of the initial measurement, unless the owner or operator notifies the ARB Executive Officer to report the delay and provides an estimated time by which the repairs will be completed.
- (E) The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of a rod packing leak concentration measurement found above the minimum leak threshold as specified in Appendix A, Table A5 and shall report the results to ARB once per calendar year as specified in section 95673 of this subarticle.
- (F) A reciprocating natural gas compressor with a rod packing or seal leak concentration measured above the minimum standard specified in section 95669 and which has been approved by the ARB Executive Officer as a critical component as specified in section 95670, shall be

successfully repaired by the end of the next scheduled process shutdown or within 12 months from the date of the initial leak concentration measurement, whichever is sooner.

- (4) The following requirements apply to reciprocating natural gas compressors at natural gas gathering and boosting stations, natural gas processing plants, natural gas transmission compressor stations, and natural gas underground storage facilities located in sectors listed in section 95666 and which are not covered under section 95668(c)(3):
- (A) Beginning January 1, 2018, components on driver engines and compressors shall comply with the leak detection and repair requirements specified in section 95669, except for the rod packing component subject to section 95668(d)(4)(B); and,
 - (B) The compressor rod packing or seal emission flow rate through the rod packing or seal vent stack shall be measured annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument) while the compressor is running at normal operating temperature using one of the following methods:
 - 1. Vent stacks shall be equipped with a meter or instrumentation to measure the rod packing or seal emissions flow rate; or,
 - 2. Vent stacks shall be equipped with a clearly identified access port installed at a height of no more than six (6) feet above ground level or a permanent support surface for making individual or combined rod packing or seal emission flow rate measurements.
 - 3. If the measurement is not obtained because the compressor is not operating for the scheduled test date and the remainder of the inspection period, then testing shall be conducted within 7 calendar days of resumed operation. The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a copy of operating records that document the compressor hours of operation and run dates in order to demonstrate compliance with this requirement.
 - (C) Beginning January 1, 2019, compressor vent stacks used to vent rod packing or seal emissions shall be controlled with the use of a vapor collection system as specified in section 95671; or,
 - (D) A compressor with a rod packing or seal with a measured emission flow rate greater than two (2) standard cubic feet per minute (scfm), or a combined rod packing or seal emission flow rate greater than the number of compression cylinders multiplied by two (2) scfm, shall be

successfully repaired within 30 calendar days from the date of the initial emission flow rate measurement.

1. A delay of repair may be granted by the ARB Executive Officer if the owner or operator can provide proof that the parts or equipment required to make necessary repairs have been ordered.
 - a. A delay of repair to obtain parts or equipment shall not exceed 30 calendar days, or 60 days from the date from of the initial measurement, unless the owner or operator notifies the ARB Executive Officer to report the delay and provides an estimated time by which the repairs will be completed.
- (E) The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of the flow rate measurement as specified in Appendix A, Table A7 and shall report the result to ARB once per calendar year as specified in section 95673 of this subarticle.
- (F) A reciprocating natural gas compressor with a rod packing or seal emission flow rate measured above the standard specified in section 95668(c)(4)(D) and which has been approved by the ARB Executive Officer as a critical component as specified in section 95670, shall be successfully repaired by the end of the next scheduled process shutdown or within 12 months from the date of the initial flow rate measurement, whichever is sooner.

(d) *Centrifugal Natural Gas Compressors*

- (1) Except as provided in section 95668(d)(2), the following requirements apply to centrifugal natural gas compressors located at onshore or offshore crude oil or natural gas production facilities, natural gas gathering and boosting stations, natural gas processing plants, natural gas transmission compressor stations, and natural gas underground storage facilities located in sectors listed in section 95666.
- (2) The requirements of section 95668(d) do not apply to the following:
 - (A) Centrifugal natural gas compressors that operate less than 200 hours per calendar year provided that the owner or operator maintains, and can make available upon request by the ARB Executive Officer, a record of the operating hours per calendar year.
- (3) Beginning January 1, 2018, components on driver engines and compressors that use a wet seal or a dry seal shall comply with the leak detection and repair requirements specified in section 95669; and,

- (4) The compressor wet seal shall be measured annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument) while the compressor is running at normal operating temperature in order to determine the wet seal emission flow rate using one of the following methods:
 - (A) Vent stacks shall be equipped with a meter or instrumentation to measure the wet seal emissions flow rate; or,
 - (B) Vent stacks shall be equipped with a clearly identified access port installed at a height of no more than six (6) feet above ground level or a permanent support surface for making wet seal emission flow rate measurements.
 - (C) If the measurement is not obtained because the compressor is not operating for the scheduled test date and the remainder of the inspection period, then testing shall be conducted within 7 calendar days of resumed operation. The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a copy of operating records that document the compressor hours of operation and run dates in order to demonstrate compliance with this requirement.
- (5) Beginning January 1, 2019, centrifugal compressors with wet seals shall control the wet seal vent gas with the use of a vapor collection system as described in section 95671; or,
- (6) A compressor with a wet seal emission flow rate greater than three (3) scfm, or a combined flow rate greater than the number of wet seals multiplied by three (3) scfm, shall be successfully repaired within 30 calendar days of the initial flow rate measurement.
 - (A) A delay of repair may be granted by the ARB Executive Officer if the owner or operator can provide proof that the parts or equipment required to make necessary repairs have been ordered.
 - 1. A delay of repair to obtain parts or equipment shall not exceed 30 calendar days, or 60 days from the date from of the initial measurement, unless the owner or operator notifies the ARB Executive Officer to report the delay and provides an estimated time by which the repairs will be completed.
- (7) If parts are not available to make the repairs, the wet seal shall be replaced with a dry seal by no later than January 1, 2020.
- (8) The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of the flow rate measurement as

specified in Appendix A, Table A7 and shall report the result to ARB once per calendar year as specified in section 95673 of this subarticle.

- (9) A centrifugal natural gas compressor with a wet seal emission flow rate measured above the standard specified in section 95668(d)(6) and which has been approved by the ARB Executive Officer as a critical component as specified in section 95670, shall be successfully repaired by the end of the next scheduled process shutdown or within 12 months from the date of the initial flow rate measurement, whichever is sooner.

(e) *Natural Gas Powered Pneumatic Devices and Pumps*

- (1) The following requirements apply to natural gas powered pneumatic devices and pumps located at facilities located in sectors listed in section 95666:
- (2) Beginning January 1, 2019, continuous bleed natural gas pneumatic devices shall not vent natural gas to the atmosphere and shall comply with the leak detection and repair requirements specified in section 95669.
 - (A) Continuous bleed natural gas powered pneumatic devices installed prior to January 1, 2016 may be used provided they meet all of the following requirements as of January 1, 2019:
 1. No device shall vent natural gas at a rate greater than six (6) standard cubic feet per hour (scfh) when the device is idle and not actuating.
 2. All devices are clearly marked with a permanent tag that identifies the natural gas flow rate as less than or equal to six (6) scfh.
 3. All devices are tested annually using a direct measurement method (high volume sampling, bagging, calibrated flow measuring instrument); and,
 4. Any device with a measured emissions flow rate greater than six (6) scfh shall be successfully repaired within 14 calendar days from the date of the initial emission flow rate measurement.
 5. The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of the flow rate measurement as specified in Appendix A, Table A7 and shall report the result to ARB once per calendar year as specified in section 95673 of this subarticle.

- (3) Beginning January 1, 2018, intermittent bleed natural gas powered pneumatic devices shall comply with the leak detection and repair requirements specified in section 95669 when the device is idle and not controlling.
- (4) Beginning January 1, 2019, natural gas powered pneumatic pumps shall not vent natural gas to the atmosphere and shall comply with the leak detection and repair requirements specified in section 95669.
- (5) Continuous bleed natural gas powered pneumatic devices and pumps which need to be replaced or retrofitted to comply with the requirements specified shall do so by one of the following methods:
 - (A) Collect all vented natural gas with the use of a vapor collection system as specified in section 95671; or,
 - (B) Use compressed air or electricity to operate.

(f) *Liquids Unloading of Natural Gas Wells*

- (1) Beginning January 1, 2018, owners or operators of natural gas wells at facilities located in sectors listed in section 95666 that are vented to the atmosphere for the purpose of liquids unloading shall perform one of the following:
 - (A) Collect the vented natural gas with the use of a vapor collection system as specified in section 95671; or,
 - (B) Measure the volume of natural gas vented by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument); or,
 - (C) Calculate the volume of natural gas vented using the Liquid Unloading Calculation listed in Appendix B or according to the Air Resources Board Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, Title 17, Division 3, Chapter 1, Subchapter 10, Article 2, Subarticle 5, Section 95153(e) (December 31, 2014), which is incorporated herein by reference; and,
 - (D) Record the volume of natural gas vented and specify the calculation method used or specify if the volume was measured by direct measurement as specified in Appendix A, Table A2.
- (2) Owners or operators shall maintain, and make available upon request by the ARB Executive Officer, a record of the volume of natural gas vented to perform liquids unloading as well as equipment installed in the natural gas well(s) designed to automatically perform liquids unloading (e.g., foaming agent, velocity tubing, plunger lift, etc.) as specified in Appendix A, Table A2

and shall report the results to ARB once per calendar year as specified in section 95673 of this subarticle.

(g) *Well Casing Vents*

- (1) Beginning January 1, 2018, owners or operators of wells located at facilities located in sectors listed in section 95666 with a well casing vent that is open to the atmosphere shall measure the natural gas flow rate from the well casing vent annually by direct measurement (high volume sampling, bagging, calibrated flow measuring instrument); and,
- (2) The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, a record of each well casing vent flow rate measurement as specified in Appendix A, Table A7 and shall report the results to ARB once per calendar year as specified in section 95673 of this subarticle.

(h) *Natural Gas Underground Storage Facility Monitoring Requirements*

- (1) As of the effective date of this subarticle, owners or operators of natural gas underground storage facilities located in sectors listed in section 95666 that have a leak detection protocol approved by the Department of Conservation Division of Oil, Gas, and Geothermal Resources shall continue to implement that plan until a monitoring plan is fully approved by ARB and all monitoring equipment specified in this subarticle is installed and fully operational.
- (2) By January 1, 2018, owners or operators of natural gas underground storage facilities listed in section 95666 shall submit to ARB a monitoring plan that contains equipment specifications and procedures for each of the monitoring requirements specified in section 95668(h)(5) of this subarticle; and,
- (3) By July 1, 2018, the ARB will approve in full or in part, or disapprove in full or in part, a monitoring plan based on whether it is sufficient to meet the requirements specified in section 95668(h)(5).
 - (A) Revisions to monitoring plans must be submitted to ARB within 14 calendar days of ARB notification; and,
 - (B) ARB will approve in full or in part, or disapprove in full or in part, the revisions to the monitoring plan within 14 calendar days of submittal to ARB.
- (4) Within 180 days of ARB approval, owners or operators of natural gas underground storage facilities listed in section 95666 shall begin monitoring each facility according to the monitoring plan specified in section 95668(h)(5) of this subarticle.

- (5) Each natural gas underground storage facility monitoring plan shall at a minimum contain procedures for validating data and alarms, procedures for documenting the event of a well blowout, and equipment specifications and procedures for performing the following types of monitoring at the facility:
- (A) Continuous air monitoring to measure upwind and downwind ambient concentrations of methane at sufficient locations throughout the facility to identify methane emissions in the atmosphere.
1. The monitoring system must have at least one sensor located in a predominant upwind location and at least one sensor located in a predominant downwind location with the ability to continuously record measurements.
 - a. The upwind and downwind instruments shall have the capability to measure ambient concentrations of methane within minimum 250 ppb accuracy to determine upwind and downwind emissions baselines.
 - b. The upwind and downwind instruments shall be calibrated at least once annually unless more frequent calibrations are recommended by the equipment manufacturer. Any defective instrumentation shall be repaired or replaced within 14 calendar days from the date of calibration or the discovery of a malfunction.
 2. The monitoring system shall have sufficient sensors to continuously measure meteorological conditions at the facility including ambient temperature, ambient pressure, relative humidity, wind speed, and wind direction with the ability to continuously record measurements.
 3. The monitoring system must have the ability to store at least 24 months of continuous instrument data and the ability to generate hourly, daily, weekly, monthly, and annual reports.
 4. The monitoring system must have an integrated alarm system that is audible and visible continuously in the control room at the facility and in remote control centers.
 5. All data collected by the monitoring system must be made available upon request of the ARB Executive Officer, and reported to ARB annually as specified in section 95673 for publication on an ARB maintained public internet web site.
 6. By January 1, 2020, the facility, in conjunction with the ARB Executive Officer, shall establish baseline monitoring conditions for

the facility using at least 12 months of continuous monitoring data;
and,

7. The monitoring system shall be programmed to trigger the alarm system at any time the downwind sensor(s) detects a reading that is greater than or equal to four (4) times the downwind sensor(s) baseline or in the event of a sensor failure; and,
 8. In the event that an alarm is triggered, the facility owner or operator shall confirm that an alarm condition has occurred and then contact the ARB, the Department of Conservation Department of Oil, Gas, and Geothermal Resources, and the local air district within 24 hours of the alarm trigger to notify the agencies of the alarm condition.
 9. The upwind and downwind baseline conditions may be re-evaluated every 12 months for changes in local conditions.
 - a. Modifications to baseline conditions must be approved by ARB.
 - b. Requests for modification to baseline conditions shall be approved in full or in part, or disapproved in full or in part, by the ARB within 3 months from the date of requested modifications.
- (B) Daily or continuous leak screening at each injection/withdrawal wellhead assembly and attached pipelines according to one or both of the following methods:
1. Daily leak screening with the use of United States Environmental Protection Agency (US EPA) Reference Method 21-Determination of Volatile Organic Compound Leaks, (October 1, 2017) which is hereby incorporated by reference, as specified in section 95669 of this subarticle, Optical Gas Imaging, or other natural gas leak screening instruments approved by the ARB Executive Officer.
 2. Continuous leak screening with the use of automated instruments and a monitoring system with an alarm system that is both audible and visible in the control room and at remote control centers.
 - a. The alarm system shall be triggered at any time a leak is detected above 50,000 ppmv total hydrocarbons or above 10,000 ppmv total hydrocarbons if the 10,000 ppmv leak persists for more than 5 continuous calendar days.

- b. The alarm system shall be triggered in the event of a sensor failure.
 - c. The monitoring system shall use a data logging system with the ability to store at least two (2) years of continuous monitoring data.
 - d. Quarterly, the alarm system shall be tested to ensure that the system and sensors are functioning properly. Any defective instrumentation shall be repaired or replaced within 14 calendar days from the date of alarm system testing.
 - e. At least annually, all sensors shall be calibrated unless more frequent calibrations are required by the manufacturer. Any defective instrumentation shall be repaired or replaced within 14 calendar days from the date of calibration.
 - f. The owner or operator shall maintain, and make available upon request by the ARB Executive Officer, records of monitoring system data, records of calibration, and records of alarm system testing.
3. All leaks identified during daily leak screening or identified by the continuous monitoring system shall be tested within 24 hours of initial leak detection in accordance with US EPA Reference Method 21 (October 1, 2017) excluding the use of PID instruments for total hydrocarbons measured in units of parts per million volume (ppmv) calibrated as methane as specified in section 95669 of this subarticle.
 4. All leaks shall be successfully repaired within the repair timeframes specified for each leak threshold as specified in section 95669 of this subarticle.
 5. A well blowout at an injection/withdrawal well constitutes a violation of this subarticle.
 6. At any time a leak is identified above 50,000 ppmv total hydrocarbons or above 10,000 ppmv total hydrocarbons for more than 5 continuous calendar days, the owner or operator shall confirm that an alarm condition has occurred and then notify the ARB, the California Department of Conservation Division of Oil, Gas, and Geothermal Resources, and the local air district within 24 hours of the initial leak measurement.

7. Owners or operators shall maintain, and make available upon request by the ARB Executive Officer, a record of the initial and final leak concentration measurements for leaks identified during daily leak screening or identified by a continuous leak monitoring system that are measured above the minimum allowable leak threshold as specified in Appendix A Table A5.
 8. Owners or operators shall report the results of the initial and final leak concentration measurements for leaks identified during daily leak screening or identified by a continuous leak monitoring system as specified in section 95673 of this subarticle.
- (C) In the event of a well blowout, daily Optical Gas Imaging (OGI) of the leak found at the injection/withdrawal head assembly shall be performed in accordance with the following provisions:
1. OGI shall be performed by a technician with a certification or training in infrared theory, infrared inspections, and heat transfer principles (e.g., Level II Thermography or equivalent).
 2. OGI video footage of the leak shall be recorded for a minimum of 10 minutes every four (4) hours through the blowout incident; and,
 3. OGI video footage of the leak shall be made available upon by request by the ARB Executive Officer for publication on an ARB maintained public internet web site; and;
 4. OGI video footage of the leak shall be made publicly available by the facility by posting the video footage on a facility maintained public internet web site throughout the course of the blowout incident.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601, 41511 and 42710, Health and Safety Code. Reference: Sections 38551, 38560, 39600, 41511 and 42710, Health and Safety Code.

§ 95669. Leak Detection and Repair.

- (a) Except as provided in section 95669(b), the following leak detection and repair requirements apply to facilities located in sectors listed in section 95666.
- (b) The requirements of this section do not apply to the following:
 - (1) Components, -- including components found on tanks, separators, wells, and pressure vessels -- that are subject to local air district leak detection and repair requirements if the requirements were in place prior to January 1, 2018.

- (2) Components, -- including components found on tanks, separators, wells, and pressure vessels -- used exclusively for crude oil with an API Gravity less than 20 averaged on an annual basis. The average annual API gravity shall be determined using certified reports submitted to the California Department of Conservation Division of Oil, Gas, and Geothermal Resources.
- (3) Components incorporated into produced water lines located downstream of a separator and tank system that is controlled with the use of a vapor collection system.
- (4) Natural gas distribution pipelines located at a crude oil production facility used for the delivery of commercial quality natural gas and which are not owned or operated by the crude oil production facility.
- (5) Components that are buried below ground. The portion of well casing that is visible above ground is not considered a buried component.
- (6) Components used to supply compressed air to equipment or instrumentation.
- (7) One-half inch and smaller stainless steel tube fittings used to supply natural gas to equipment or instrumentation that have been measured using US EPA Reference Method 21 (October 1, 2017) and verified to be below the minimum allowable leak threshold at startup or during the first leak inspection performed after installation.
- (8) Components operating under a negative gauge pressure or below atmospheric pressure.
- (9) Components at a crude oil or natural gas production facility that are located downstream from the point of transfer of custody and which are not owned or operated by the production facility.
- (10) Temporary components used for general maintenance and used less than 300 hours per calendar year if the owner or operator maintains, and can make available at the request of the ARB Executive Officer, a record of the date when the components were installed.
- (11) Well casing vents that are open to the atmosphere which are subject to the requirements specified in section 95668(g) of this subarticle.
- (12) Components found on steam injection wells or water flood wells.
- (13) Pneumatic devices or pumps that use compressed air or electricity to operate.
- (14) A compressor rod packing which is subject to annual emission flow rate testing as specified in section 95668(c)(4)(B) of this subarticle.

- (c) Beginning January 1, 2018, all components, including components found on tanks, separators, wells, and pressure vessels not identified in section 95669(b) shall be inspected and repaired within the timeframes specified in this section.
- (d) The ARB Executive Officer may perform inspections at facilities at any time to determine compliance with the requirements specified in this section.
- (e) Except for inaccessible or unsafe to monitor components, owners or operators shall audio-visually inspect (by hearing and by sight) all hatches, pressure-relief valves, well casings, stuffing boxes, and pump seals for leaks or indications of leaks at least once every 24 hours for facilities that are visited daily, or at least once per calendar week for facilities that are not visited at least once every 24 hours; and,
 - (1) Owners or operators shall audio-visually inspect all pipes for leaks or indications of leaks at least once every 12 months.
- (f) Any audio-visual inspection specified in 95669(e) that indicates a leak that cannot be repaired within 24 hours shall be tested using US EPA Reference Method 21 (October 1, 2017) within 24 hours after initial leak detection, and the leak shall be repaired in accordance with the repair timeframes specified in this section.
 - (1) For leaks detected during normal business hours, the leak measurement shall be performed within 24 hours. For leaks detected after normal business hours or on a weekend or holiday, the deadline is shifted to the end of the next normal business day.
 - (2) Any leaks measured above the minimum leak threshold shall be successfully repaired within the timeframes specified in this section.
- (g) At least once each calendar quarter, all components shall be tested for leaks of total hydrocarbons in units of parts per million volume (ppmv) calibrated as methane in accordance with US EPA Reference Method 21 (October 1, 2017) excluding the use of PID instruments.
 - (1) Optical Gas Imaging (OGI) instruments may be used as a leak screening device, but may not be used in place of US EPA Reference Method 21 (October 1, 2017) during quarterly leak inspections, provided they are approved for use by the ARB Executive Officer and used by a technician with a certification or training in infrared theory, infrared inspections, and heat transfer principles (e.g., Level II Thermography or equivalent training); and,
 - (A) All leaks detected with the use of an OGI instrument shall be measured using US EPA Reference Method 21 (October 1, 2017) within two calendar days of initial OGI leak detection or within 14 calendar days of initial OGI leak detection of an inaccessible or unsafe to monitor

component to determine compliance with the leak thresholds and repair timeframes specified in this subarticle.

- (2) All inaccessible or unsafe to monitor components shall be inspected at least once annually using US EPA Reference Method 21 (October 1, 2017).
- (h) Beginning January 1, 2018 and through December 31, 2019, any component with a leak concentration measured above the following standards shall be repaired within the time period specified:
 - (1) Leaks with measured total hydrocarbon concentrations greater than or equal to 10,000 ppmv but not greater than 49,999 ppmv shall be successfully repaired or removed from service within 14 calendar days of initial leak detection.
 - (2) Leaks with measured total hydrocarbon concentrations greater than or equal to 50,000 ppmv shall be successfully repaired or removed from service within five (5) calendar days of initial leak detection.
 - (3) Critical components or critical process units shall be successfully repaired by the end of the next process shutdown or within 12 months from the date of initial leak detection, whichever is sooner.
 - (4) A delay of repair may be granted by the ARB Executive Officer under the following conditions:
 - (A) The owner or operator can provide proof that the parts or equipment required to make necessary repairs have been ordered.
 - 1. A delay of repair to obtain parts or equipment shall not exceed 30 calendar days from the date identified in Table 2 by which repairs must be made, unless the owner or operator notifies the ARB Executive Officer to report the delay and provides an estimated time by which the repairs will be completed.
 - (B) A gas service utility can provide documentation that a system has been temporarily classified as critical to reliable public gas system operation as ordered by the utility's gas control office.

**Table 1 - Allowable Number of Leaks
January 1, 2018 through December 31, 2019**

Leak Threshold	200 or Less Components	More than 200 Components
10,000-49,999 ppmv	5	2% of total inspected
50,000 ppmv or greater	2	1% of total inspected

**Table 2 - Repair Time Periods
January 1, 2018 through December 31, 2019**

Leak Threshold	Repair Time Period
10,000-49,999 ppmv	14 calendar days
50,000 ppmv or greater	5 calendar days
Critical Components and Critical Process Units	Next scheduled shutdown or within 12 months, whichever is sooner

- (i) On or after January 1, 2020, any component with a leak concentration measured above the following standards shall be repaired within the time period specified:
- (1) Leaks with measured total hydrocarbon concentrations greater than or equal to 1,000 ppmv but not greater than 9,999 ppmv shall be successfully repaired or removed from service within 14 calendar days of initial leak detection.
 - (2) Leaks with measured total hydrocarbon concentrations greater than or equal to 10,000 ppmv but not greater than 49,999 ppmv shall be successfully repaired or removed from service within five (5) calendar days of initial leak detection.
 - (3) Leaks with measured total hydrocarbon concentrations greater than or equal to 50,000 ppmv shall be successfully repaired or removed from service within two (2) calendar days of initial leak detection.
 - (4) Critical components or critical process units shall be successfully repaired by the end of the next process shutdown or within 12 months from the date of initial leak detection, whichever is sooner.
 - (5) A delay of repair may be granted by the ARB Executive Officer under the following conditions:
 - (A) The owner or operator can provide proof that the parts or equipment required to make necessary repairs have been ordered.

1. A delay of repair to obtain parts or equipment shall not exceed 30 calendar days from the date identified in Table 4 by which repairs must be made, unless the owner or operator notifies the ARB Executive Officer to report the delay and provides an estimated time by which the repairs will be completed.
- (B) A gas service utility can provide documentation that a system has been temporarily classified as critical to reliable public gas system operation as ordered by the utility's gas control office.

**Table 3 - Allowable Number of Leaks
On or After January 1, 2020**

Leak Threshold	200 or Less Components	More than 200 Components
1,000-9,999 ppmv	5	2% of total inspected
10,000-49,999 ppmv	2	1% of total inspected
50,000 ppmv or greater	0	0

**Table 4 - Repair Time Periods
On or After January 1, 2020**

Leak Threshold	Repair Time Period
1,000-9,999 ppmv	14 calendar days
10,000-49,999 ppmv	5 calendar days
50,000 ppmv or greater	2 calendar days
Critical Components and Critical Process Units	Next scheduled shutdown or within 12 months, whichever is sooner

- (j) Upon detection of a component with a leak concentration measured above the standards specified, the owner or operator shall affix to that component a weatherproof readily visible tag that identifies the date and time of leak detection measurement and the measured leak concentration. The tag shall remain affixed to the component until all of the following conditions are met:
- (1) The leaking component has been successfully repaired or replaced; and,
 - (2) The component has been re-inspected and measured below the lowest standard specified for the inspection year when measured in accordance with US EPA Reference Method 21 (October 1, 2017), excluding the use of PID instruments.

- (3) Tags shall be removed from components following successful repair.
- (k) Owners or operators shall maintain, and make available upon request by the ARB Executive Officer, a record of all leaks found at the facility as specified in Appendix A, Tables A4 and A5, and shall report the results to ARB once per calendar year as specified in section 95673 of this subarticle.

Additional Requirements

- (l) Hatches shall remain closed at all times except during sampling, adding process material, or attended maintenance operations.
- (m) Open-ended lines and valves located at the end of lines shall be sealed with a blind flange, plug, cap or a second closed valve, at all times except during operations requiring liquid or gaseous process fluid flow through the open-ended line. Open-ended lines do not include vent stacks used to vent natural gas from equipment and cannot be sealed for safety reasons. Open-ended lines shall be repaired as follows:
 - (1) Open-ended lines that are not capped or sealed shall be capped or sealed within 14 calendar days from the date of initial inspection.
 - (2) Open-ended lines that are capped or sealed and found leaking shall be repaired in accordance with the timeframes specified in sections 95669(h) and 95669(i).
- (n) Components or component parts which incur five (5) repair actions within a continuous 12-month period shall be replaced with a compliant component in working order and must be re-measured using US EPA Reference Method 21 (October 1, 2017), to determine that the component is below the minimum leak threshold. A record of the replacement must be maintained in a log at the facility, and shall be made available upon request by the ARB Executive Officer.
- (o) Compliance with Leak Detection and Repair Requirements:
 - (1) Between January 1, 2018 and December 31, 2019, no facility shall exceed the number of allowable leaks specified in Table 1 during an ARB Executive Officer inspection as determined in accordance with US EPA Reference Method 21 (October 1, 2017), excluding the use of PID instruments.
 - (2) On or after January 1, 2020, no facility shall exceed the number of allowable leaks specified in Table 3 during an ARB Executive Officer inspection as determined in accordance with US EPA Reference Method 21 (October 1, 2017), excluding the use of PID instruments.

- (3) On or after January 1, 2020, no component shall exceed a leak of total hydrocarbons greater than or equal to 50,000 ppmv during an ARB Executive Officer inspection as determined in accordance with US EPA Reference Method 21 (October 1, 2017), excluding the use of PID instruments.
- (4) The failure of an owner or operator to repair leaks within the timeframes specified in this subarticle during any inspection period shall constitute a violation of this subarticle.
- (5) Except for the fourth (4th) quarterly inspection of each calendar year, leaks discovered during an operator conducted inspection shall not constitute a violation if the leaking components are repaired within the timeframes specified in this subarticle.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95670. Critical Components.

- (a) By January 1, 2018 or within 180 days from installation, critical components used in conjunction with a critical process unit at facilities located in sectors listed in section 95666 must be pre-approved by the ARB Executive Officer if owners or operators wish to claim any critical component exemptions available under this subarticle.
 - (1) Critical components that have been designated as critical under an existing local air district leak detection and repair program as of January 1, 2018 are not subject the critical component requirements specified in this subarticle.
- (b) Owners or operators must provide sufficient documentation demonstrating that a critical component is required as part of a critical process unit and that shutting down the critical component or process unit would impact safety or reliability of the natural gas system.
- (c) A request for a critical component or process unit approval is made by submitting a record of the component or process unit as specified in Appendix A, Table A3 along with supporting documentation to the ARB at the address listed in section 95673(b).
- (d) Owners or operators shall maintain, and make available upon request by the ARB Executive Officer, a record of all critical components or process units located at the facility as specified in Appendix A, Table A3.
- (e) Each critical component or critical process unit must be identified according to one of the following methods:

- (1) Identify each component using a weatherproof, readily visible tag that indicates it as an ARB approved critical component and includes the date of ARB Executive Officer approval; or,
 - (2) Provide a diagram or drawing of all critical components or the critical process unit upon request by the ARB Executive Officer.
- (f) Approval of a critical component may be granted only if owners or operators fully comply with this section. The ARB Executive Officer retains discretion to deny any request for critical component or process unit approval.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95671. Vapor Collection Systems and Vapor Control Devices.

- (a) Beginning January 1, 2019, the following requirements apply to equipment at facilities located in sectors listed in section 95666 that must be controlled with the use of a vapor collection system and control device as a result of the requirements specified in section 95668 of this subarticle.
- (b) Unless section 95671(c) applies, the vapor collection system shall direct the collected vapors to one of the following:
 - (1) Sales gas system; or,
 - (2) Fuel gas system; or,
 - (3) Gas disposal well not currently under review by the Division of Oil and Gas and Geothermal Resources.
- (c) If no sales gas system, fuel gas system, or gas disposal well specified in section 95671(b) is available at the facility, the owner or operator must control the collected vapors as follows:
 - (1) For facilities without an existing vapor control device installed at the facility, the owner or operator must install a new vapor control device as specified in section 95671(d); or,
 - (2) For facilities currently operating a vapor control device and which are required to control additional vapors as a result of this subarticle, the owner or operator must replace the existing vapor control device with a new vapor control device as specified in section 95671(d) to control all of the collected vapors, if the device does not already meet the requirements specified in section 95671(d).
- (d) Any vapor control device required in section 95671(c) must meet the following requirements:

- (1) If the vapor control device is to be installed in a region classified as in attainment with all state and federal ambient air quality standards, the vapor control device must achieve at least 95 percent vapor control efficiency of total emissions and must meet all applicable federal, state, and local air district requirements; or,
 - (2) If the vapor control device is to be installed in a region classified as non-attainment with, or which has not been classified as in attainment of, all state and federal ambient air quality standards, the owner or operator must install one of the following devices that meets all applicable federal, state, and local air district requirements:
 - (A) A non-destructive vapor control device that achieves at least 95 percent vapor control efficiency of total emissions and does not result in emissions of nitrogen oxides (NO_x); or,
 - (B) A vapor control device that achieves at least 95 percent vapor control efficiency of total emissions and does not generate more than 15 parts per million volume (ppmv) NO_x when measured at 3 percent oxygen and does not require the use of supplemental fuel gas, other than gas required for a pilot burner, to operate.
- (e) If the collected vapors cannot be controlled as specified in sections 95671(b) through (d) of this subarticle, the equipment subject to the vapor collection and control requirements specified in this subarticle may not be used or installed and must be removed from service by January 1, 2019, and circulation tanks may not be used and must be removed from service by January 1, 2020.
- (f) Vapor collection systems and control devices are allowed to be taken out of service for up to 30 calendar days per calendar year for performing maintenance.
- (1) A time extension to perform maintenance not to exceed 14 calendar days per calendar year may be granted by the ARB Executive Officer.
 - (A) The owner or operator is responsible for maintaining a record of the number of calendar days per calendar year that the vapor collection system or vapor control device is out of service and shall provide a record of such activity at the request of the ARB Executive Officer.
 - (2) If an alternate vapor control device compliant with this section is installed prior to conducting maintenance and the vapor collection and control system continues to collect and control vapors during the maintenance operation consistent with the applicable standards specified in section 95671, the event does not count towards the 30 calendar day limit.

- (3) Vapor collection system and control device shutdowns that result from utility power outages are not subject to enforcement action provided the equipment resumes normal operation as soon as normal utility power is restored. Vapor collection system and control device shutdowns that result from utility power outages do not count towards the 30 calendar day limit for maintenance.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code.
Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95672. Record Keeping Requirements.

- (a) Beginning January 1, 2018, owners or operators of facilities located in sectors listed in section 95666 subject to requirements specified in sections 95668, 95669, 95670, and 95671 shall maintain, and make available upon request by the ARB Executive Officer, a copy of records necessary to verify compliance with the provisions of this subarticle which include the following:

Flash Analysis Testing

- (1) Maintain, for at five years from the date of each flash analysis test, a record of the flash analysis testing that shall include the following:
 - (A) A sketch or diagram of each separator and tank system tested that identifies the liquid sampling location and all pressure vessels, separators tanks, sumps, and ponds within the system; and,
 - (B) A record of the flash analysis testing results, calculations, and a description of the separator and tank system as specified in Appendix A Table A1; and,
 - (C) A field testing form for each flash analysis test conducted as specified in Appendix C Form 1; and,
 - (D) The laboratory report(s) for each flash analysis test conducted.

Separator and Tank Systems

- (2) Maintain at least five years of records submitted to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources that document each separator and tank system crude oil, condensate, and produced water throughput.
- (3) Maintain at least five years of records that document the basis for an exemption from the separator and tank system requirements as specified in section 95668(a)(2).

Circulation Tanks for Well Stimulation Treatments

- (4) Maintain a copy of the best practices management plan as specified in section 95668(b)(1) designed to limit methane emissions from circulation tanks.

Reciprocating Natural Gas Compressors

- (5) Maintain, for at least five years from the date of each leak concentration measurement, a record of each rod packing leak concentration measurement found above the minimum leak threshold as specified in Appendix A, Table A5.
- (6) Maintain, for at least five years from the date of each emissions flow rate measurement, a record of each rod packing emission flow rate measurement as specified in Appendix A, Table A7.
- (7) Maintain, for at least one calendar year, a record that documents the date(s) and hours of operation a compressor is operated in order to demonstrate compliance with the rod packing leak concentration or emission flow rate measurement in the event that the compressor is not operating during a scheduled inspection.
- (8) Maintain records that provide proof that parts or equipment required to make necessary repairs have been ordered.

Centrifugal Natural Gas Compressors

- (9) Maintain, for at least five years from the date of each emissions flow rate measurement, a record of each wet seal emission flow rate measurement as specified in Appendix A, Table A7.
- (10) Maintain, for at least one calendar year, a record that documents the date(s) and hours of operation a compressor is operated in order to demonstrate compliance with the wet seal emission flow rate measurement in the event that the compressor is not operating during a scheduled inspection.
- (11) Maintain records that provide proof that parts or equipment required to make necessary repairs have been ordered.

Natural Gas Powered Pneumatic Devices

- (12) Maintain, for at least five years from the date of each emissions flow rate measurement, a record of the emission flow rate measurement as specified in Appendix A, Table A7.

Liquids Unloading of Natural Gas Wells

- (13) Maintain, for at least five years from the date of each liquids unloading measurement or calculation, a record of the measured or calculated volume of natural gas vented to perform liquids unloading and equipment installed in the natural gas well(s) designed to automatically perform liquids unloading (e.g., foaming agent, velocity tubing, plunger lift, etc.) as specified in Appendix A Table A2.

Well Casing Vents

- (14) Maintain, for at least five years from the date of each emissions flow rate measurement, a record of each well casing vent emission flow rate measurement as specified in Appendix A, Table A7.

Underground Natural Gas Storage

- (15) Maintain, for at least five years from the date of each leak concentration measurement, a record of the initial and final leak concentration measurement for leaks identified during daily leak inspections or identified by a continuous leak monitoring system and measured above the minimum allowable leak threshold as specified in Appendix A Table A5.
- (16) Maintain, for at least five years, records of both meteorological and upwind and downwind air monitoring data as specified in section 95668(h)(A)(5).

Leak Detection and Repair

- (17) Maintain, for at least five years from each inspection, a record of each leak detection and repair inspection as specified in Appendix A Table A4.
- (18) Maintain, for at least five years from the date of each inspection, a component leak concentration and repair form for each inspection as specified in Appendix A Table A5.
- (19) Maintain records that provide proof that parts or equipment required to make necessary repairs have been ordered.
- (20) Maintain gas service utility records that demonstrate that a system has been temporarily classified as critical to reliable public gas operation throughout the duration of the classification period.

Vapor Collection System and Vapor Control Devices

- (21) Maintain records that provide proof that parts or equipment required to make necessary repairs have been ordered.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601, 39607 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95673. Reporting Requirements.

- (a) Beginning January 1, 2018, owners or operators of facilities located in sectors listed in section 95666 subject to requirements specified in sections 95668 and 95669 shall report the following information to ARB by July 1st of each calendar year unless otherwise specified:

Flash Analysis Testing

- (1) Within 90 days of performing flash analysis testing or recalculating annual methane emissions, report the test results, calculations, and a description of the separator and tank system as specified in Appendix A, Table A1.

Reciprocating Natural Gas Compressors

- (2) Annually, report the leak concentration for each rod packing or seal measured above the minimum leak threshold as specified in Appendix A, Table A5.
- (3) Annually, report the emission flow rate measurement for each rod packing or seal as specified in Appendix A, Table A7.

Centrifugal Natural Gas Compressors

- (4) Annually, report the emission flow rate measurement for each wet seal as specified in Appendix A, Table A7.

Natural Gas Powered Pneumatic Devices

- (5) Annually, report the emission flow rate measurement for each pneumatic device with a designed emission flow rate of less than six (6) scfh as specified in Appendix A, Table A7.

Liquids Unloading of Natural Gas Wells

- (6) Annually, report the measured or calculated volume of natural gas vented to perform liquids unloading and equipment installed in the natural gas well(s) designed to automatically perform liquids unloading as specified in Appendix A Table A2.

Well Casing Vents

- (7) Annually, report the emission flow rate measurement for each well casing vent that is open to atmosphere as specified in Appendix A, Table A7.

Underground Natural Gas Storage

- (8) Within 24 hours of receiving an alarm or identifying a leak that is measured above 50,000 ppmv total hydrocarbons or above 10,000 ppmv total hydrocarbons for more than 5 consecutive calendar days at a natural gas injection/withdrawal wellhead assembly and attached pipelines, the owner or operator shall notify the ARB, the Department of Oil, Gas, and Geothermal Resources, and the local air district to report the leak concentration measurement.
- (9) Within 24 hours of receiving an alarm signaled by a downwind air monitoring sensor(s) that detects a reading that is greater than four (4) times the downwind sensor(s) baseline, the owner or operator shall notify the ARB, the Department of Oil, Gas, and Geothermal Resources, and the local air district to report the emissions measurement.
- (10) Quarterly, report the initial and final leak concentration measurement for leaks identified during daily inspections or identified by a continuous leak monitoring system and measured above the minimum allowable leak threshold as specified in Appendix A Table A5.
- (11) Annually, report meteorological data and data gathered by the upwind and downwind monitoring sensors.

Leak Detection and Repair

- (12) Annually, report the results of each leak detection and repair inspection conducted during the calendar year as specified in Appendix A, Table A4.
 - (13) Annually, report the initial and final leak concentration measurements for components measured above the minimum allowable leak threshold as specified in Appendix A Table A5.
- (b) Reports may be e-mailed electronically to ARB with the subject line "O&G GHG Regulation Reporting" to oil&gas@arb.ca.gov or mailed to:

California Air Resources Board
Attention: O&G GHG Regulation Reporting
Industrial Strategies Division
1001 I Street, PO Box 2815
Sacramento, California 95814

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601, 39607 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95674. Implementation.

(a) *Implementation by ARB and by the Local Air Districts*

- (1) The requirements of this subarticle are provisions of state law and are enforceable by both ARB and the local air districts where equipment covered by this subarticle is located. Local air districts may incorporate the terms of this subarticle into local air district rules. An owner or operator of equipment subject to this subarticle must pay any fees assessed by a local air district for the purposes of recovering the district's cost of implementing and enforcing the requirements of this subarticle. Any penalties secured by a local air district as the result of an enforcement action that it undertakes to enforce the provisions of this subarticle may be retained by the local air district.
- (2) The ARB Executive Officer, at his or her discretion, may enter into an agreement or agreements with any local air district to further define funding, implementation and enforcement processes, including arrangements further specifying approaches for implementation and enforcement of this subarticle, and for information sharing between ARB and local air districts relating to this subarticle.
- (3) Implementation and enforcement of the requirements of this subarticle by a local air district may in no instance result in a standard, requirement, or prohibition less stringent than provided for by this subarticle, as determined by the Executive Officer. The terms of any local air district permit or rule relating to this subarticle do not alter the terms of this subarticle, which remain as separate requirements for all sources subject to this subarticle.
- (4) Implementation and enforcement of the requirements of this subarticle by a local air district, including inclusion or exclusion of any of its terms within any local air district permit, or within a local air district rule, or registration of a facility with a local air district or ARB, does not in any way waive or limit ARB's authority to implement and enforce upon the requirements of this subarticle. A facility's permitting or registration status also in no way limits the ability of a local air district to enforce the requirements of this subarticle.

(b) *Requirements for Regulated Facilities*

- (1) Local Air District Permitting Application Requirements
 - (A) Owners or operators of facilities or equipment regulated by this subarticle, and who are required by federal, state, or local law to hold local air district permits that cover those facilities or equipment shall apply for local air district permit terms ensuring compliance with this

article. This requirement applies to facilities or equipment upon issuance of any new local air district permit covering these facilities or equipment, or upon the scheduled renewal of an existing permit covering these facilities or equipment.

- (B) If, after the effective date of this subarticle, any local air district amends or adopts permitting rules that result in additional equipment or facilities regulated by this subarticle becoming subject to local air district permitting requirements, then owners or operators of that equipment or facility must apply for terms in any applicable local air district permits for that equipment or facility that ensure compliance with this subarticle.

(2) Registration Requirements

- (A) Owners or operators of facilities or equipment that are regulated by this subarticle shall register the equipment at each facility by reporting the following information to ARB as specified in Appendix A Table A6 no later than January 1, 2018, unless the local air district has established a registration or permitting program that collects at least the following information, and has entered into a Memorandum of Agreement with ARB specifying how information is to be shared with ARB.
 - 1. The owner or operator's name and contact information.
 - 2. The address or location of each facility with equipment regulated by this subarticle.
 - 3. A description of all equipment covered by this subarticle located at each facility including the following:
 - a. The number of crude oil or natural gas wells at the facility.
 - b. A list identifying all pressure vessels, tanks, separators, sumps, and ponds at the facility, including the size of each tank and separator in units of barrels.
 - c. The annual crude oil, natural gas, and produced water throughput of the facility.
 - d. A list identifying all reciprocating and centrifugal natural gas compressors at the facility.
 - e. A count of all natural gas powered pneumatic devices and pumps at the facility.
 - 4. The permit numbers of all local air district permits issued for the facility or equipment, and an identification of permit terms that ensure compliance with the terms of this subarticle, or an explanation of why such terms are not included.

5. An attestation that all information provided in the registration is provided by a party authorized by the owner or operator to do so, and that the information is true and correct.
- (B) Updates to these reports, recording any changes in this information, must be filed with ARB, or, as relevant, with the local air district no later than January 1 of the calendar year after the year in which any information required by this subarticle has changed.
- (3) Owners or operators of equipment subject to this subarticle must comply with all the requirements of sections 95666, 95667, 95668, 95669, 95670, 95671, 95672, 95673, and 95674 of this subarticle, regardless of whether or not they have complied with the permitting and registration requirements of this section.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601, 39603, 39607 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600, 40701, 40702, 41511, 42300, 42301 and 42311, Health and Safety Code.

§ 95675. Enforcement.

- (a) Failure to comply with the requirements of this subarticle at any individual piece of equipment subject to this subarticle constitutes a single, separate violation of this subarticle.
- (b) Each day, or portion thereof, that an owner or operator is not in full compliance with the requirements of this subarticle is a single, separate violation of this subarticle.
- (c) Each metric ton of methane emitted in violation of this subarticle constitutes a single, separate violation of this subarticle.
- (d) Failure to submit any report required by this subarticle shall constitute a single, separate violation of this subarticle for each day or portion thereof that the report has not been received after the date the report is due.
- (e) Failure to retain and failure to produce any record that this subarticle requires to be retained or produced shall each constitute a single, separate violation of this subarticle for each day or portion thereof that the record has not been retained or produced.
- (f) Submitting or producing inaccurate information required by this subarticle shall be a violation of this subarticle.
- (g) Falsifying any information or record required to be submitted or retained by this subarticle, or submitting or producing inaccurate information, shall be a violation of this subarticle.

NOTE: Authority cited: Sections 38510, 38562, 38580, 39600, 39601, 39607 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95676. No Preemption of More Stringent Air District or Federal Requirements.

This regulation does not preempt any more stringent requirements imposed by any Air District. Compliance with this subarticle does not excuse noncompliance with any Federal regulation. The ARB Executive Officer retains authority to determine whether an Air District requirement is more stringent than any requirement of this subarticle.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

§ 95677. Severability.

Each part of this subarticle is deemed severable, and in the event that any part of this subarticle is held to be invalid, the remainder of the subarticle shall continue in full force and effect.

NOTE: Authority cited: Sections 38510, 38562, 39600, 39601 and 41511, Health and Safety Code. Reference: Sections 38551, 38560, 39600 and 41511, Health and Safety Code.

Appendix A

Record Keeping and Reporting Forms

Table A1
Flash Analysis Testing Record Keeping and Reporting Form

Tank System ID:						
Testing Date:						
Facility Name:				Air District:		
Owner/Operator Name:				Signature*:		
Address:						
City:				State:		Zip:
Contact Person:				Phone Number:		
Crude Oil or Condensate Flash Test and Calculation Results						
API Gravity	GOR (scf/bbl)	Molecular Weight	WT% CH ₄	Sample Temp (°F)	Throughput (bbl/day)	Metric Tons CH ₄ /Yr
Produced Water Flash Test and Calculation Results						
GWR (scf/bbl)	Molecular Weight	WT% CH ₄	Sample Temp (°F)	Throughput (bbl/day)	Metric Tons CH ₄ /Yr	
Days in Operation per Year:						
Combined Annual Methane Emission Rate:					MTCH ₄ /Yr	
Separator and Tank System Description						
Total Number in Separator and Tank System				Total Number on Vapor Collection		
Wells:						
Pressure Vessels:						
Pressure Separators:						
Separators:						
Tanks:						
Sumps:						
Ponds:						

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

Table A2
Liquids Unloading Record Keeping and Reporting Form

		Facility Name:		Air District:	
		Owner/Operator Name:		Signature*:	
		Address:			
City:				State:	Zip:
Contact Person:				Phone Number:	
Date	Well ID	Volume of Natural Gas Vented (Mcf)	Calculation Method or Measured	Automation Equipment**	

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

**Automation equipment includes foaming agent, velocity tubing, plunger lift, etc.

Table A3
Designated Critical Component Form

Facility Name:		Air District:	
Owner/Operator Name:		Signature*:	
Address:			
City:		State:	Zip:
Contact Person:		Phone Number:	
Component Type:			Approval Date:

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

Table A4
Leak Detection and Repair Inspection
Record Keeping and Reporting Form

Inspection Date:		
Facility Name:		Air District:
Owner/Operator Name:	Signature*:	
Address:		
City:	State:	Zip:
Contact Person:	Phone Number:	
Inspection Company Name:		
Number of Leaks per Leak Threshold Category		Percentage of Total Components Inspected
1,000 to 9,999 ppmv:		
10,000 to 49,999 ppmv:		
50,000 ppmv or Greater:		
Total Components Inspected:		

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

Table A5
Component Leak Concentration and Repair
Record Keeping and Reporting Form

[illegible]

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

**Table A6
Reporting and Registration Form for Facilities**

Date:			
Facility Name:		Air District:	
Facility Address or Location:			
Owner/Operator Name:		Signature*:	
Address:			
City:		State:	Zip:
Contact Person:		Phone Number:	
Crude Oil Annual Throughput:		(bbls)	Number of Wells:
Condensate Annual Throughput:		(bbls)	Number of Wells:
Produced Water Annual Throughput:		(bbls)	Number of Wells:
Description and Size of Separators, Tanks, Sumps and Ponds (bbls)	Description of Natural Gas Compressors	Number of Gas Powered Pneumatic Devices	Number of Gas Powered Pneumatic Pumps

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

Table A7
Emission Flow Rate Record Keeping and Reporting Form

Facility Name:		Air District:	
Facility Address or Location:			
Owner/Operator Name:		Signature*:	
Address:			
City:		State:	Zip:
Contact Person:		Phone Number:	
Type of Equipment or Well ID	Measurement Date	Flow Rate (scfm or scfh)	

*By signing this form, I am attesting that I am authorized to do so, and that the information provided is true and correct.

Appendix B

Calculation for Determining Vented Natural Gas Volume from Liquids Unloading of Natural Gas Wells

$$E_{scf} = \left(\frac{V * P_1 * T_2}{P_2 * T_1} \right) + (FR * HR)$$

Where:

E_{scf} is the natural gas emissions per event in scf

$V = \pi * r^2 * D$ (volume of the well)

$r = \frac{CD}{2}$ (radius of the well)

CD is the casing diameter in feet

D is the depth of the well in feet

P_1 is the shut-in pressure of the well in psia

P_2 is 14.7 psia (standard surface pressure)

T_1 is the temperature of the well at shut-in pressure in °F

T_2 is 60 °F (standard surface temperature)

FR is the metered flowrate of the well or the sales flowrate of the well in scf/hour

HR is the hours the well was left open to atmosphere during unloading

$$CH_4 \text{ emissions} = E_{scf} * MF_{CH_4} * MV * MW_{CH_4} * \left(\frac{\text{metric ton}}{2204.6 \text{ lb}} \right)$$

Where:

$CH_4 \text{ emissions}$ is in metric tons per event

$MF_{CH_4} = \frac{\text{lbmole } CH_4}{\text{lbmole gas}}$ (mole fraction of CH₄ in the natural gas)

$MV = \frac{1 \text{ lbmole gas}}{379.3 \text{ scf gas}}$ (molar volume)

$MW_{CH_4} = \frac{16 \text{ lb } CH_4}{\text{lbmole } CH_4}$ (molecular weight of CH₄)

Appendix C

Test Procedure for Determining Annual Flash Emission Rate of Gaseous Compounds from Crude Oil, Condensate, and Produced Water

1. PURPOSE AND APPLICABILITY

In crude oil and natural gas production, flash emissions may occur when gas dissolved in crude oil, condensate, or produced water is released from the liquids due to a decrease in pressure or increase in temperature, such as when the liquids are transferred from an underground reservoir to the earth's surface. This procedure is used for determining the annual flash emission rate from tanks used to separate, store, or hold crude oil, condensate, or produced water. The laboratory methods required to conduct this procedure are used to measure methane and other gaseous compounds.

2. PRINCIPLE AND SUMMARY OF TEST PROCEDURE

This procedure is conducted by collecting samples of crude oil or condensate and produced water upstream of a separator or tank where flashing may occur. Samples must be collected under pressure and according to the methods specified in this procedure. If a pressure separator is not available for collecting samples, sampling shall be conducted using a portable pressurized separator.

Two sampling methods are specified for collecting liquid samples and are referenced in GPA Standard 2174-93 Sections 2.1c and 2.1a. The first method requires a double valve cylinder and the second requires a piston-type constant pressure cylinder. Both methods shall be conducted as specified in this procedure.

The laboratory methods specified for this procedure are based on American Standards and Testing Materials (ASTM), US Environmental Protection Agency (US EPA), and Gas Processor Association (GPA) methods. These laboratory methods measure the volume and composition of gases that flash from the liquids, including a Gas-Oil or Gas-Water Ratio, as well as the molecular weight and weight percent of the gaseous compounds. Included are procedures for measuring the bubble point pressure and conducting a laboratory flash analysis. The laboratory results are used with the crude oil or condensate or produced water throughput to calculate the mass of emissions that are flashed from the liquids per year.

3. DEFINITIONS

For the purposes of this procedure, the following definitions apply:

3.1 "Air Resources Board or ARB" means the California Air Resources Board.

- 3.2** "API Gravity" means a scale used to reflect the specific gravity (SG) of a fluid such as crude oil, condensate, produced water, or natural gas. The API gravity is calculated as $[(141.5/SG) - 131.5]$, where SG is the specific gravity of the fluid at 60°F, and where API refers to the American Petroleum Institute.
- 3.3** "Bubble point pressure" means the pressure, at the pressurized sample collection temperature, at which the first bubble of gas comes out of solution.
- 3.4** "Condensate" means hydrocarbon and other liquid either produced or separated from crude oil or natural gas during production and which condenses due to changes in pressure or temperature.
- 3.5** "Crude oil" means any of the naturally occurring liquids and semi-solids found in rock formations composed of complex mixtures of hydrocarbons ranging from one to hundreds of carbon atoms in straight and branched chain rings.
- 3.6** "Double valve cylinder" means a metal cylinder equipped with valves on either side for collecting crude oil, condensate, or produced water samples.
- 3.7** "Emissions" means the discharge of natural gas into the atmosphere.
- 3.8** "Emulsion" means any mixture of crude oil, condensate, or produced water with varying amounts of natural gas contained in the liquid.
- 3.9** "Flash or flashing" means a process during which gas dissolved in crude oil, condensate, or produced water under pressure is released when subject to a decrease in pressure, such as when liquids are transferred from an underground reservoir to a tank on the earth's surface or from a pressure vessel to an atmospheric tank.
- 3.10** "Floating Piston cylinder" means a metal cylinder containing an internal pressurized piston for collecting crude oil, condensate, or produced water samples.
- 3.11** "Gas-Oil Ratio (GOR)" means a measurement used to describe the volume of gas that is flashed from a barrel of crude oil or condensate in a separator and tank system.
- 3.12** "Gas-Water Ratio (GWR)" means a measurement used to describe the volume of gas that is flashed from a barrel of produced water in a separator and tank system.

- 3.13** "Natural gas" means a naturally occurring mixture or process derivative of hydrocarbon and non-hydrocarbon gases, of which its constituents include methane, carbon dioxide, and heavier hydrocarbons. Natural gas may be field quality (which varies widely) or pipeline quality.
- 3.14** "Operating pressure" means the pressure of the vessel from which a sample is collected. If no vessel pressure gauge is available or the difference between the sampling train pressure gauge and vessel pressure gauge readings is greater than +/- 5 psig, the sampling train pressure gauge reading shall be used to record the pressure on Form 1.
- 3.15** "Operating temperature" means the temperature of the vessel from which a sample is collected. If no vessel temperature gauge is available or the difference between the sampling train temperature gauge reading and the vessel temperature gauge reading is greater than +/- 4 °F, then the sampling train temperature gauge reading shall be used to record the temperature on Form 1.
- 3.16** "Portable pressurized separator" means a sealed vessel that can be moved from one location to another by attachment to a motor vehicle without having to be dismantled and is used for separating and sampling crude oil, condensate, or produced water at the temperature and pressure of the separator and tank system required for sampling.
- 3.17** "Pressure separator" means a pressure vessel used for the primary purpose of separating crude oil and produced water or for separating natural gas and produced water.
- 3.18** "Pressure vessel" means any vessel rated, as indicated by an ASME pressure rating stamp, and operated to contain normal working pressures of at least 15 psig without vapor loss to the atmosphere and may be used for the separation of crude oil, condensate, produced water, or natural gas.
- 3.19** "Produced water" means water recovered from an underground reservoir as a result of crude oil, condensate, or natural gas production and which may be recycled, disposed, or re-injected into an underground reservoir.
- 3.20** "Separator" means any tank or pressure separator used for the primary purpose of separating crude oil and produced water or for separating natural gas, condensate, and produced water. In crude oil production a separator may be referred to as a Wash Tank or as a three-phase separator. In natural gas production a separator may be referred to as a heater/separator.
- 3.21** "Separator and tank system" means the first separator in a crude oil or natural gas production system and any tank or sump connected directly to the first separator.

- 3.22** “Tank” means any container constructed primarily of non-earthen materials used for the purpose of storing, holding, or separating emulsion, crude oil, condensate, or produced water and that is designed to operate below 15 psig normal operating pressure.
- 3.23** “Target temperature” means the temperature at which a pressurized hydrocarbon liquid is flashed, and is therefore the temperature of the first atmospheric separator or tank.
- 3.24** “Throughput” means the average volume of crude oil, condensate, or produced water expressed in units of barrels per day.

4. BIASES AND INTERFERENCES

- 4.1** The sampling method used to collect a liquid sample will have an impact on the final results reported. Liquid samples shall be collected in accordance with the sampling procedures specified in this procedure.
- 4.2** The location from where a sample is collected will have an impact on the final results reported. Liquid samples shall be collected from a pressure separator or portable pressurized separator as specified in this procedure.
- 4.3** Collecting liquid samples from a pressure separator or portable pressurized separator that periodically drains liquids will have an impact on the final results reported. Samples shall not be collected from a pressure separator or portable pressurized separator while it periodically drains liquids and shall only be taken when a drain valve is closed.
- 4.4** Collecting liquid samples using an empty double valve cylinder will allow gases to flash from the cylinder and will have an impact on the final results reported. Samples collected using a double valve cylinder shall be collected as specified in this procedure.
- 4.5** Displacing liquids from a double valve cylinder that are reactive and not immiscible with the sample liquid collected will result in gas composition or volume errors and will affect the final results reported. Displacement liquids shall be pre-tested by a laboratory to verify that the liquid is non-reactive and is immiscible with the sample liquid collected.
- 4.6** Non-calibrated equipment including pressure or temperature gauges will have an impact the final results reported. All pressure and temperature measurements shall be conducted with calibrated gauges as specified in this procedure and shall be calibrated at least twice per year.
- 4.7** Conducting laboratory procedures other than those specified in this procedure will have an impact on the final results reported. All laboratory

methods and quality control and quality assurance procedures shall be conducted as specified in this procedure.

- 4.8** The collection of duplicate samples is recommended to verify reported results.
- 4.9** Failure to perform the bubble point pressure and sample integrity check may affect the reported results.
- 4.10** Performing a flash analysis by a means other than the method specified in this procedure may affect the reported results.

5. SAMPLING EQUIPMENT SPECIFICATIONS

- 5.1** An intrinsically safe pressure gauge capable of measuring liquid pressures of up to 2,000 pounds per square inch absolute within +/- 0.1 percent accuracy.
- 5.2** A temperature gauge capable of reading liquid temperature within +/- 2°F and within a range of 32°F to 250°F.
- 5.3** A graduated cylinder capable of measuring liquid in at least five (5) milliliter increments with at least the same capacity as the double valve cylinder used for liquid sampling.
- 5.4** A portable pressurized separator that is sealed from the atmosphere and is used for collecting crude oil, condensate, and produced water samples at the temperature and pressure of the separator and tank system being sampled.

6. SAMPLING EQUIPMENT

- 6.1** A double valve cylinder or a piston cylinder of at least 300 milliliters in volume for collecting crude oil or condensate samples or at least 800 milliliters in volume for collecting produced water samples.
- 6.2** A graduated cylinder for use with double valve cylinder.
- 6.3** A waste container suitable for capturing and disposing sample liquid.
- 6.4** High-pressure rated metal components and control valves that can withstand the temperature and pressure of the pressure separator from which sample liquid is gathered.
- 6.5** Pressure gauges with minimum specifications listed in Section 5.

- 6.6** Temperature gauge with minimum specifications listed in Section 5.
- 6.7** If required, a portable pressurized separator with minimum specifications listed in Section 5.

7. DATA REQUIREMENTS

- 7.1** The data required to conduct this procedure shall be provided by the facility owner or operator prior to conducting the sampling methods specified in this procedure. Field sampling shall not be performed until all data requirements are provided as listed in Section 7.2 and as specified on Form 1.
- 7.2** For each sample collected, the following data shall be recorded on the sample cylinder identification tag and on Form 1 prior to conducting a sample collection method:
 - (a) The separator identification number or description.
 - (b) The separator temperature and pressure if available.
 - (c) First downstream atmospheric tank or separator temperature.

8. DOUBLE VALVE CYLINDER SAMPLING METHOD

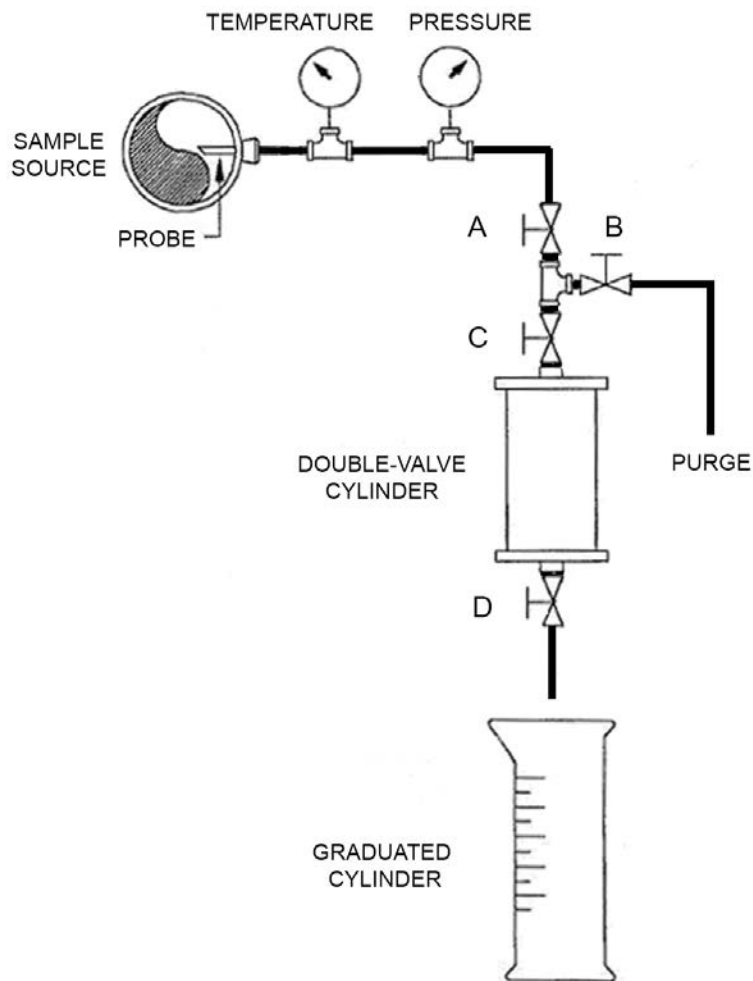
- 8.1** Fill the double valve cylinder with non-reactive liquid that is immiscible with the liquid to be collected to prevent flashing within the cylinder and to prevent the displacement liquid from mixing or attaining homogeneity with the sample liquid.
 - (a) As an alternative for collecting produced water samples, the double valve cylinder may be filled with sample water under the same pressure as the vessel to be sampled and then purged according to the procedure specified in section 8.6.
- 8.2** Identify a pressure separator immediately upstream of the separator or tank required for testing. If no pressure separator is available, install a portable pressurized separator immediately upstream of the separator or tank that can be used to collect crude oil, condensate, and produced water samples.
- 8.3** Record the sample collection data requirements specified in Section 7 on the cylinder identification tag and on Form 1.
- 8.4** Locate the sampling port(s) for collecting liquid samples.
- 8.5** Connect the sampling train as illustrated in Figure 1 to the sampling port on the pressure separator or portable pressurized separator while minimizing

tubing between the purge valve and cylinder as shown. Bushings or reducers may be required.

- 8.6** Purge the sampling train: Place the outlet of valve B into the waste container. With valves B, C and D closed, slowly open valve A completely, and then slowly open valve B to purge the sample train until a steady stream of liquid without gas pockets is observed, and then close valve B.
- 8.7** Prepare for sampling: Orient the double-valve cylinder in the vertical position so that displacement liquid can readily be discharged from the cylinder. Note that the orientation of valves C and D depend on the type of sample being collected and the liquid used for displacement. Based on density differences in liquids, the heaviest liquid must be introduced or expelled from the bottom of cylinder. See Figure 2.

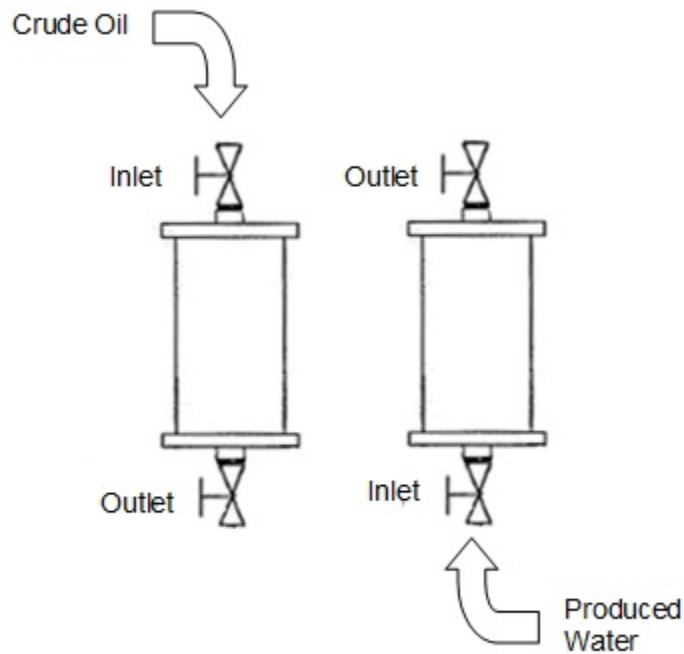
 - (a) If the alternative method for collecting a produced water sample is chosen, the cylinder must be purged at a rate not to exceed 60 milliliters per minute until at least 1600 milliliters (two cylinder volumes) are purged through the cylinder that has been previously filled with pressurized sample water prior to proceeding further.
- 8.8** Slowly open valve C to the full open position and place the outlet of valve D into the graduated cylinder.

Figure 1: Double Valve Cylinder Sampling Train



- 8.9** Collect liquid sample: Slowly open valve D to allow a slow displacement of the non-reactive displacement liquid at a rate not to exceed 60 milliliters per minute to prevent the sample liquid from flashing. Continue until approximately 70 percent of the displacement liquid is measured in the graduated cylinder. Then close valves D and C.
- 8.10** Record the pressure and temperature on Form 1.

Figure 2: Double Valve Cylinder Orientation

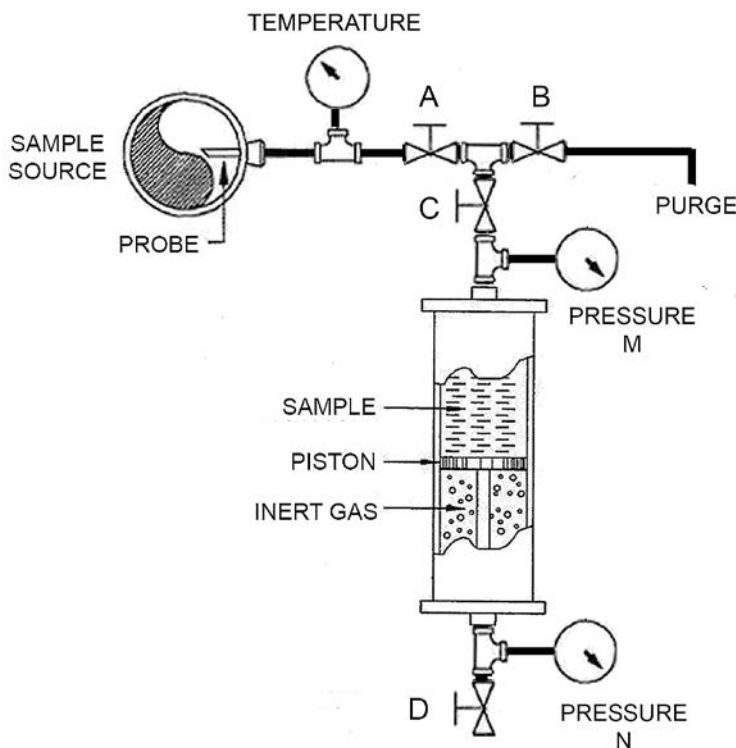


- 8.11** Record the double valve cylinder volume and the volume of liquid sampled on the cylinder identification tag and on Form 1.
- 8.12** Drain approximately 20 percent of the remaining displacement liquid into the graduated cylinder to take outage and record the actual volume of liquid drained on Form 1. This is required for safety and to prevent a pressurized cylinder from exploding during transport.
- 8.13** Disconnect the sample cylinder from the sampling train and verify that both valves are sealed.
- 8.14** Remove sampling train: With valves D and C closed, purge any remaining liquid in the sampling train through valve B. Then close valves A and B. Disconnect the sampling train from the pressure separator or portable pressurized separator.
- 8.15** Verify that all of the data requirements are recorded on the cylinder identification tag and on Form 1.
- 8.16** Transport the cylinder to the laboratory for conducting the laboratory methods specified in Section 12.

9. PISTON CYLINDER SAMPLING METHOD

- 9.1 Identify a pressure separator immediately upstream of the separator or tank required for testing. If no pressure separator is available, install a portable pressurized separator immediately upstream of the separator or tank that can be used to collect crude oil, condensate, and produced water samples.
- 9.2 Record the sample collection data requirements specified in Section 7 on the cylinder identification tag and on Form 1.
- 9.3 Locate the sampling port(s) for collecting liquid samples.
- 9.4 Connect the sampling train as illustrated in Figure 3 to the pressure separator or pressurized portable separator while minimizing tubing between the purge valve and cylinder as shown. Bushings or reducers may be required.
- 9.5 Purge the sampling train: Place the outlet of valve B into the waste container. With valves B, C and D closed, slowly open valve A completely, and then slowly open valve B to purge the sample train until a steady stream of liquid without gas pockets is observed, and then close valve B.

Figure 3: Piston Cylinder Sampling Train



- 9.6** Prepare for sampling: Verify that the gas pressure in the piston cylinder is greater than the pressure of sample liquid. If not, additional gas pressure must be applied to the piston.
- 9.7** With valve B closed and valve A open, slowly open valve C to the full open position, then slowly open valve D until the pressure indicated on Gauge N is equal to Gauge M and then close valve D momentarily.
- 9.8** Collect liquid sample: Slowly open Valve D to allow liquid to enter the piston cylinder at a rate not to exceed 60 milliliters per minute by using the indicator and scale on the piston cylinder. Continue until a maximum of 80 percent of the cylinder is filled with liquid. Then close valves C and D.
- 9.9** Record the pressure and temperature on Form 1.
- 9.10** Record the cylinder volume and volume of liquid sampled on the cylinder identification tag and on Form 1.
- 9.11** Disconnect the sample cylinder from the sampling train and verify that both valves are sealed.
- 9.12** Remove sampling train: Place the outlet of valve B into the waste container and slowly open valve B to purge all liquid from the sampling train. Then close valves A and B. Disconnect the sampling train from the pressure separator or portable pressurized separator.
- 9.13** Verify that all of the data requirements are recorded on the cylinder identification tag and on Form 1.
- 9.14** Transport the cylinder to the laboratory for conducting the laboratory methods as specified in Section 12.

10. LABORATORY REQUIREMENTS AND METHODS

10.1 Quality Control, Quality Assurance, and Field Records

- (a) Quality control requirements shall be performed in accordance with the laboratory methods specified in this test procedure.
- (b) Each day of sampling, at least one field duplicate sample shall be collected per matrix type (crude oil, condensate, produced water). The field duplicate samples are collected to demonstrate acceptable method precision. Through this process the laboratory can evaluate the consistency of sample collection and analytical measurements as well as matrix variation. The laboratory should establish control limits based on relative percent difference to evaluate the validity of the measured results.

- (c) Laboratory procedures shall be in place for establishing acceptance criteria for field activities described in Sections 7, 8 and 9 of this procedure. All deviations from the acceptance criteria shall be documented. Deviations from the acceptance criteria may or may not affect data quality.
- (d) Laboratory procedures shall be in place to ensure that field staff have been trained on the sampling methods specified in this procedure and retrained on sampling methods if this procedure changes.
- (e) Field records shall provide direct evidence and support necessary for technical interpretations, judgments, and discussions concerning project activities and shall, at a minimum, include a completed copy of Form 1 as provided in this procedure for each sample collected.

10.2 Laboratory Equipment

- (a) All laboratory equipment used to conduct measurements shall be calibrated in accordance with the manufacturer specifications and in accordance with the laboratory methods specified in this procedure.
- (b) Any chromatograph system that allows for the collection, storage, interpretation, adjustment, or quantification of chromatograph detector output signals representing relative component concentrations may be used to conduct this procedure. All test methods and quality control requirements shall be conducted in accordance with each laboratory method specified.
- (c) The minimum reporting limit of the instruments used for reporting gaseous compounds must be at least 100 parts per million (ppm) for both hydrocarbon and fixed gases.
- (d) The laboratory equipment, including sample lines, must be temperature controlled and allow for the independent control of the sample cylinder and flash analysis equipment temperatures.
- (e) A gas volume meter with the capability of measuring volume in increments of one (1) milliliter minimum is required.
- (f) Laboratory vessels (e.g., glassware, cylinders, etc.) and equipment for collecting flash gas without sample degradation and without compromising the integrity of the sample are required.
- (g) A metering pump for introducing deionized water into a sample cylinder that can meter the water in precise increments (e.g., 0.01 milliliters) is required.
- (h) Additional sample preparation guidance can be found in GPA Standard 2174-93, GPA Standard 2261-00 and GPA Standard 2177-03.

10.3 Bubble Point Pressure and Sample Integrity Check

This procedure is used to determine the bubble point pressure at sample collection temperature of a pressurized hydrocarbon liquid prior to conducting a flash or any compositional analysis. These results determine the integrity of the sample and provide a means of verifying the sampling conditions reported on Form 1. When heating is required, safety precautions must be taken due to thermal expansion within a pressurized cylinder. This procedure is performed with the use of a Double Valve cylinder and is not applicable for Floating-Piston cylinders. Samples gathered with the use of a Floating-Piston cylinder must be transferred to a Double Valve cylinder using a water displacement method prior to conducting this procedure.

- (a) Fix the cylinder in an upright vertical position using a ring stand or similar device. This ensures that headspace gas remains at the top of the cylinder.
- (b) Connect a pressure gauge and source of pressurized deionized water to the bottom of the sample cylinder using a metering pump for measuring the volume of water introduced into the sample cylinder.
- (c) Slowly condition the cylinder to the measured sample collection temperature reported on Form 1 while monitoring pressure for a minimum of two (2) hours or until a change of no more than one (1) psi in pressure over 15 minutes is observed.
- (d) Introduce deionized water while slowly mixing the sample by tilting the cylinder no more than 60 degrees from vertical in either direction to ensure that headspace gas remains at the top of the cylinder and liquid remains on the bottom. Continue adding deionized water to increase the pressure to above the pressure reported on Form 1, while mixing to ensure the sample returns to a single phase liquid.
- (e) Record the stabilized pressure reading on the laboratory report.
- (f) Remove a small increment of deionized water (approximately 0.5 milliliters) to reduce the pressure and allow it to stabilize. Document the sample pressure and the volume of deionized water (pump volume) on the laboratory report. Repeat until at least three (3) pressure readings above and three (3) pressure readings below the reported value on Form 1 are gathered.
- (g) Graph the results of sample pressure and volume of deionized water (pump volume). Draw a line between the points above the measured value on Form 1. Draw a second line between the points below the measured value on Form 1. The intercept of the two lines denotes the bubble point pressure.

- (h) Record the bubble point pressure on the laboratory report.
- (i) Any sample that fails to achieve the following Pass/Fail criteria, which is the percentage difference between the bubble point pressure and the sample collection pressure reported on Form 1, shall be discarded:

Pass/Fail Criteria for Bubble Point Pressure Measurements
+/- 5% for > 500 psig +/- 7% for 250 - 499 psig +/- 10% for 100 - 249 psig +/- 15% for 50 - 99 psig +/- 20% for 20 - 49 psig +/- 30% for < 20 psig

10.4 Laboratory Flash Analysis Procedure

This procedure is used to determine the volume and composition of gas flashed from a pressurized liquid. This procedure is conducted after performing the bubble point pressure measurement to verify sample integrity.

- (a) Condition the sample cylinder to the collection temperature recorded on Form 1 for a minimum of two (2) hours. This step may be expedited by performing in conjunction with the Bubble Point determination.
- (b) Connect a pressure gauge and source of pressurized deionized water to the bottom of the sample cylinder using a metering pump for measuring the volume of water introduced into the sample cylinder.
- (c) Connect the top of the sample cylinder to a temperature controlled flash chamber that can be heated or cooled independently from the sample cylinder. The chamber shall be of sufficient volume to allow for the flash process and the collection of the flashed liquid. Located at the top of the chamber will be an inlet for the liquid, and an outlet for the gas. The gas vent line will allow the flash gas to be routed through a constant volume gas cylinder and on to a gas meter (e.g., gasometer).
- (d) Throughout the flash process, maintain the transfer lines, flash chamber, and constant volume gas cylinder and gas meter at the target temperature.
- (e) Before introducing pressurized liquid into the flash chamber, evacuate the entire system and purge with helium. Vent the helium purge gas to atmosphere through the meter and then re-zero the gas meter.

- (f) Introduce deionized water into the bottom of the liquid sample cylinder to increase the pressure to a start pressure above the bubble point pressure. This step ensures that the sample remains single phase when introduced into the flash chamber.
- (g) Document the start pressure. The flash study will be performed at this pressure and not at the field recorded sample pressure.
- (h) Partially open (*crack-open*) the liquid sample inlet valve to allow for a slight drip of liquid into the flash chamber. It is critical to maintain the pressurized liquid as close as possible to the start pressure.
- (i) After liquid hydrocarbon and gas have been observed, terminate the flash procedure by closing the liquid inlet valve. Document the volume and/or weight of the residual liquid and the volume of gas collected. Document the volume of pressurized liquid sample introduced into the system.
- (j) Isolate the gas sample in the constant volume gas cylinder by closing both valves. Detach the cylinder and analyze via GPA Standard 2286-95. Before analyzing, condition the gas sample for a minimum of two hours at a temperature of at least 30°F above the target temperature. Assure that the GC inlet line is heat traced to maintain sample integrity upon injection.
- (k) Measure the pressurized liquid density at the start pressure and temperature. Also measure the density at a second pressure also above the bubble point pressure and the start pressure. Extrapolate the density of the pressurized liquid at the collection pressure recorded on Form 1.
- (l) Correct the pressurized liquid volume from the start pressure to the sample collection pressure recorded on Form 1 using the density measurements.
- (m) Document corrected liquid volume.
- (n) Perform all necessary calculations including that of the GOR or GWR.
- (o) A mass balance (analytical integrity check) may be performed by comparing the weight of pressurized liquid used for the flash (determined from the corrected volume used and the density at sample conditions) to the sum of the weight of the liquid and the weight of the gas.

10.5 Gas-Oil and Gas-Water Ratio Calculation Methodology

- (a) Convert the volume of gas vapor measured during the laboratory flash analysis procedure to standard atmospheric conditions as derived from the Ideal Gas Law as follows:

$$Vapor_{Std} = \frac{(Volume_{Lab})(459.67 + 60F)(P_{Lab})}{(459.67 + T_{Lab})(14.696)} \quad \text{Equation 1}$$

Where:

Vapor_{Std} = Standard cubic feet of vapor at 60°F and 14.696 psia.

Volume_{Lab} = Volume of vapor measured at laboratory conditions.

T_{Lab} = Temperature of vapor at laboratory conditions, °F.

P_{Lab} = Pressure of vapor at laboratory conditions, psia.

459.67 = Conversion from Fahrenheit to Rankine

60F = Standard temperature of 60°F.

14.696 = Standard atmospheric pressure, psia.

- (b) Convert the volume of crude oil, condensate, or produced water measured after conducting the laboratory flash analysis procedure to standard conditions as follows:

$$Liquid_{Std} = \left(\frac{Mass_{Liquid}}{Density_{60F}} \right) \left(\frac{1 \text{ gallon}}{3785.412 \text{ ml}} \right) \left(\frac{1 \text{ STB}}{42 \text{ gallons}} \right) \quad \text{Equation 2}$$

Where:

Liquid_{Std} = Standard volume of post-flash liquid at 60°F, barrels.

Mass_{Liquid} = Mass of liquid at laboratory conditions, grams.

Density_{60F} = Density of liquid at 60°F, grams/milliliter.

3785.412 = Conversion from milliliter to US gallons.

STB = Stock Tank Barrel.

42 gallons = Volume of a stock tank barrel at 60°F.

- (c) Calculate the Gas-Oil or Gas-Water Ratio as follows:

$$G = \frac{(Vapor_{Std})}{(Liquid_{Std})} \quad \text{Equation 3}$$

Where:

G = The Gas-Oil or Gas-Water Ratio.

Vapor_{Std} = Standard cubic feet of vapor at 60°F and 14.696 psia.

Liquid_{Std} = Standard volume of post-flash liquid at 60°F, barrels.

10.6 Analytical Laboratory Methods and Requirements

The following methods are required to evaluate and report flash emission rates from crude oil, condensate, and produced water.

- (a) Oxygen, Nitrogen, Carbon Dioxide, Methane, Ethane, Propane, i-Butane, n-

Butane, i-Pentane, n-Pentane, Hexanes, Heptanes, Octanes, Nonanes, Decanes+: Evaluate per GPA Standard 2286-95, ASTM D1945-03, and ASTM D 3588-98.

- (b) BTEX: Evaluate per US EPA Method 8021B (GC/FID) or use ASTM D7096-16, GPA Standard 2286-95, US EPA Method 8260B, US EPA Method TO-14A, and US EPA Method TO-15 as alternate methods.
- (c) API Gravity of whole oil at 60°F by ASTM D 287-92 (Hydrometer Method), ASTM D4052-09 (Densitometer), ASTM D5002-16 (Densitometer), or ASTM D70-09 (Pycnometer). Note: if water is entrained in sample, use ASTM D 287-92. If needed calculate Specific Gravity 60/60°F = 141.5 / (131.5 + API Gravity at 60°F)
- (d) Specific Gravity of Produced Water at 60°F by ASTM D 287-92 (Hydrometer Method), ASTM D4052-09 (Densitometer), ASTM D5002-16 (Densitometer), or ASTM D70-09 (Pycnometer). If needed calculate API at 60°F = (141.5 / SG at 60°F) - 131.5.
- (e) Molecular Weight of gaseous phase by calculation per ASTM D 3588-98.

11. CALCULATING RESULTS

The following calculations are performed by the owner or operator in conjunction with the laboratory reports specified in Section 12. The same calculations are used for crude oil, condensate, and produced water.

- 11.1** Calculate the volume of gas flashed from the liquid per year using the Gas Oil or Gas Water Ratio obtained from the laboratory report as follows:

$$Ft^3 / Year = (G) \left(\frac{Barrels}{Day} \right) \left(\frac{Days}{Year} \right) \quad \text{Equation 4}$$

Where:

Ft³/Year = standard cubic feet of gas produced per year

G = Gas Oil or Gas Water Ratio (from laboratory report)

Barrels/Day = barrels per day of liquid (DOGGR certified reports)

Days/Year = days of operation per year (owner/operator)

- 11.2** Convert the gas volume to pounds as follows: **Equation 5**

$$Mass_{Gas} / Year = \left(\frac{Ft^3}{Year} \right) \left(\frac{gram}{gram - mole} \right) \left(\frac{gram - mole}{23.690 l} \right) \left(\frac{28.317 l}{Ft^3} \right) \left(\frac{lb}{454 grams} \right)$$

Where:

Mass_{Gas} /Year = pounds of gas per year

Ft³/Year = cubic feet of gas produced per year (Equation 1)

Gram/Gram-Mole = Molecular weight (from laboratory report)

23.690 l/gr-mole = molar volume of ideal gas at 14.696 psi and 60°F

11.3 Calculate the annual mass of methane as follows:

$$Mass_{Methane} / Year = \left(\frac{WT\% \text{ Methane}}{100} \right) \left(\frac{Mass_{Gas}}{Year} \right) \left(\frac{\text{metric ton}}{2205 \text{ lb}} \right) \quad \text{Equation 6}$$

Where:

Mass_{Methane} /Year = metric tons of methane

Mass_{Gas} /Year = pounds of gas per year (Equation 5)

WT% Methane = Weight percent of methane (from laboratory report)

12. LABORATORY REPORTS

12.1 The results of this procedure are used by owners or operators of separator and tank systems to report annual methane flash emissions to ARB. The following information shall be compiled as a report by the laboratory conducting this procedure and provided to the owner or operator each time flash analysis testing is conducted:

- (a) A sketch or diagram of the separator and tank system depicting the sampling location; and,
- (b) A copy of Form 1 as specified in this procedure for each liquid sample collected; and,
- (c) The laboratory results for each liquid sample evaluated as specified in Section 12.4; and,
- (d) Other documentation or information necessary to support technical interpretations, judgments, and discussions.

12.2 Reports shall be made available to the owner or operator no later than 60 days from the date of liquid sampling.

12.3 Reports shall be maintained by the laboratory conducting this procedure for a minimum of five (5) years from the date of liquid sampling and additional copies shall be made available at the request of the owner or operator.

- 12.4** Laboratory reports shall include, at minimum, a listing of results obtained using the laboratory methods specified in this procedure and as specified in Table 1.

Table 1: Laboratory Data Requirements

WT% CO ₂ , CH ₄
WT% C ₂ -C ₉ , C ₁₀ +
WT% BTEX
WT% O ₂
WT% N ₂
Molecular Weight of gas sample (gram/gram-mole)
Liquid phase specific gravity of produced water
Gas Oil or Gas Water Ratio (scf/stock tank barrel)
API gravity of whole oil or condensate at 60°F
Post-Test Cylinder Water Volume
Post-Test Cylinder Oil Volume

13. ALTERNATIVE TEST PROCEDURES, SAMPLING METHODS OR LABORATORY METHODS

Alternative test procedures, sampling methods, or laboratory methods other than those specified in this procedure shall only be used if prior written approval is obtained from ARB. In order to secure ARB approval of an alternative test procedure, sampling method, or laboratory method, the applicant is responsible for demonstrating to the ARB's satisfaction that the alternative test procedure, sampling method, or laboratory method is equivalent to those specified in this test procedure.

- 13.1** Such approval shall be granted on a case-by-case basis only. Because of the evolving nature of technology and procedures and methods, such approval shall not be granted in subsequent cases without a new request for approval and a new demonstration of equivalency.
- 13.2** Documentation of any such approvals, demonstrations, and approvals shall be maintained in the ARB files and shall be made available upon request.

14. REFERENCES

- ASTM D70-09 *Standard Test Method for Density of Semi-Solid Bituminous Materials (Pycnometer Method), which is incorporated herein by reference. 2009.*
- ASTM D 287-92 *Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method), which is incorporated herein by reference. Reapproved 2000.*
- ASTM D1945-03 *Standard Test Method for Analysis of Natural Gas by Gas Chromatography, which is incorporated herein by reference. Reapproved 2010.*
- ASTM D 3588-98 *Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, which is incorporated herein by reference. Reapproved 2003.*
- ASTM D4052-09 *Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter, which is incorporated herein by reference. 2009.*
- ASTM D5002-16 *Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer, which is incorporated herein by reference. 2016.*
- ASTM D7096-16 *Standard Test Method for Determination of the Boiling Point Range Distribution of Gasoline by Wide Bore Capillary Gas Chromatography, which is incorporated herein by reference. 2016.*
- US EPA Method 8021B *Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, which is incorporated herein by reference. 2014.*
- US EPA Method 8260B *Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), which is incorporated herein by reference. 1996.*
- US EPA Method TO-14A *Determination of Volatile Organic Compounds (VOCs) In Ambient Air Using Specially Prepared Canisters with Subsequent Analysis By Gas Chromatography, which is incorporated herein by reference. 1999.*
- US EPA Method TO-15 *Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed By Gas*

Chromatography/Mass Spectrometry (GC/MS), which is incorporated herein by reference. 1999.

GPA Standard 2174-93 *Obtaining Liquid Hydrocarbon Samples for Analysis by Gas Chromatography, which is incorporated herein by reference. 2000.*

GPA Standard 2177-03 *Analysis of Natural Gas Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography, which is incorporated herein by reference. 2003.*

GPA Standard 2261-00 *Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography, which is incorporated herein by reference. 2000.*

GPA Standard 2286-95 *Tentative Method for the Extended Analysis of Natural Gas and Similar Gaseous Mixtures by Temperature Program Gas Chromatography, which is incorporated herein by reference. Reprinted 1999.*

FORM 1
Flash Analysis Testing Field Data Form

Date of Testing:	
Production Company Name:	
Address:	
City:	
Contact:	Phone:
Sampling Company Name:	
Address:	
City:	
Contact:	Phone:
Sample Information	
Portable Pressure Separator ID:	
Pressure Separator ID:	
Sample Pressure:	psia
Sample Temperature:	°F
Atmospheric Tank or Separator Temperature	°F
Cylinder Type (Double Valve or Piston):	
Sample Type (circle one): crude oil condensate produced water	
Cylinder ID:	Cylinder Volume: ml
Displacement Liquid:	
Sample Volume: ml	Outage Displaced: ml