ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 59

[EPA–HQ–OAR–2006–0971; FRL–8498–6]

RIN 2060–AN69

National Volatile Organic Compound Emission Standards for Aerosol Coatings

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action promulgates national emission standards for the aerosol coatings (aerosol spray paints) category under section 183(e) of the Clean Air Act (CAA). The standards implement section 183(e) of the CAA, as amended in 1990, which requires the Administrator to control volatile organic compounds (VOC) emissions from certain categories of consumer and commercial products for purposes of reducing VOC emissions contributing to ozone formation and ozone nonattainment. This regulation establishes nationwide reactivity-based standards for aerosol coatings. States have previously promulgated rules for the aerosol coatings category based upon reductions of VOC by mass; however, EPA has concluded that a national rule based upon the relative reactivity approach will achieve more reduction in ozone formation than may be achieved by a mass-based approach for this specific product category. This rule will better control a product's contribution to ozone formation by encouraging the use of less reactive VOC ingredients, rather than treating all VOC in a product alike through the traditional mass-based approach. We are also revising EPA's regulatory definition of VOC. This revision is necessary to include certain compounds that would otherwise be exempt in order to account for the reactive compounds in aerosol coatings that contribute to ozone formation. Therefore, certain compounds that would not be VOC under the otherwise applicable definition will count towards the applicable reactivity limits under this final regulation. The initial listing of product categories and schedule for regulation was published on March 23, 1995 (60 FR 15264). This final action announces EPA's final decision to list aerosol coatings for regulation under Group III of the consumer and commercial product category for which regulations are mandated under section 183(e) of the CAA.

DATES: *Effective Date:* This final rule is effective March 24, 2008. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of March 24, 2008.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2006–0971. All documents in the docket are listed on the *www.regulations.gov* Web site. Although listed in the index, some information is not publicly available (e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute). Certain other material, such as copyrighted material, will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov* or in hard copy at the EPA Docket Center, Docket ID No. EPA–HQ–OAR–2006–0971, EPA Headquarters Library, Room 3334 in the EPA West Building, 1301 Constitution Ave., NW., Washington, DC. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The EPA Docket Center telephone number is (202) 566–1744, and the facsimile number for the EPA Docket Center is (202) 566–9744. EPA visitors are required to show photographic identification and sign the EPA visitor log. After processing through the X-ray and magnetometer machines, visitors will be given an EPA/DC badge that must be visible at all times.

Informational updates will be provided via the EPA Web site at *http://www.epa.gov/epahome/dockets.htm* as they are available.

FOR FURTHER INFORMATION CONTACT: For questions about the final rule, contact Ms. J. Kaye Whitfield, U.S. EPA, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Natural Resources and Commerce Group (E143–03), Research Triangle Park, NC 27711; telephone number (919) 541–2509; facsimile number (919) 541–3470; e-mail address: *whitfield.kaye@epa.gov*. For information concerning the CAA section 183(e) consumer and commercial products program, contact Mr. Bruce Moore, U.S. EPA, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, Natural Resources and Commerce Group (E143–03), Research Triangle Park, North Carolina 27711, telephone number: (919) 541–5460, facsimile number (919) 541–3470, e-mail address: *moore.bruce@epa*.gov.

SUPPLEMENTARY INFORMATION:

Entities Potentially Affected by This Action. The entities potentially affected by this regulation encompass all steps in aerosol coatings operations. This includes manufacturers, processors, wholesale distributors, or importers of aerosol coatings for sale or distribution in the United States, or manufacturers, processors, wholesale distributors, or importers who supply the entities listed above with aerosol coatings for sale or distribution in interstate commerce in the United States. The entities potentially affected by this action include:

Category	NAICS code [a]	Examples of regulated entities
Paint and Coating Manufacturing	32551	Manufacturing of lacquers, varnishes, enamels, epoxy coatings, oil and alkyd vehicle, plastisols, polyurethane, primers, shellacs, stains, water repellant coatings.
All Other Miscellaneous Chemical Production and Preparation Manufacturing.	325998	Aerosol can filling, aerosol packaging services.

[a] North American Industry Classification System *http://www.census.gov/epcd/www/naics.html*.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. To determine whether you would be affected by this action, you should examine the applicable industry description in section I.E of the promulgation preamble. If you have any questions regarding the applicability of this action to a particular entity, consult the appropriate EPA contact listed in the **FOR FURTHER INFORMATION CONTACT** section of this notice.

Docket. The docket number for the National Volatile Organic Compounds Emission Standards for Aerosols Coating (40 CFR part 59, subpart E) is Docket ID No. EPA–HQ–OAR–2006–0971.

World Wide Web (WWW). In addition to being available in the docket, an electronic copy of the final rule is also available on the WWW. Following the Administrator's signature, a copy of the final rule will be posted on EPA's Technology Transfer Network (TTN) policy and guidance page for newly proposed or promulgated rules at *http://www.epa.gov/ttn/oarpg.* The TTN provides information and technology exchange in various areas of air pollution control.

Judicial Review. Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of the final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by May 23, 2008. Under CAA section 307(b)(2), the requirements established by this final action may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

Section 307(d)(7)(B) of the CAA further provides that ''only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review.'' This section also provides a mechanism for EPA to convene a proceeding for reconsideration, ''if the person raising the objection can demonstrate to EPA that it was impracticable to raise such an objection [within the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule.'' Any person seeking to make such a demonstration to EPA should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave., NW., Washington, DC 20004.

Organization of This Document. The information presented in this notice is organized as follows:

I. Background

A. The Ozone Problem

Ground-level ozone, a major component of smog, is formed in the atmosphere by reactions of VOC and oxides of nitrogen in the presence of sunlight. The formation of ground-level ozone is a complex process that is affected by many variables.

Exposure to ground-level ozone is associated with a wide variety of human health effects, as well as agricultural crop loss, and damage to forests and ecosystems. Controlled human exposure studies show that acute health effects are induced by short-term (1 to 2 hour) exposures (observed at concentrations as low as 0.12 parts per million (ppm)), generally while individuals are engaged in moderate or heavy exertion, and by prolonged (6 to 8 hour) exposures to ozone (observed at concentrations as low as 0.08 ppm and possibly lower), typically while individuals are engaged in moderate exertion. Transient effects from acute exposures include pulmonary inflammation, respiratory symptoms, effects on exercise performance, and increased airway responsiveness. Epidemiological studies have shown associations between ambient ozone levels and increased susceptibility to respiratory infection, increased hospital admissions and emergency room visits. Groups at increased risk of experiencing elevated exposures include active children, outdoor workers, and others who regularly engage in outdoor activities. Those most susceptible to the effects of ozone include those with pre-existing respiratory disease, children, and older adults. The literature suggests the possibility that long-term exposures to ozone may cause chronic health effects (*e.g.*, structural damage to lung tissue and accelerated decline in baseline lung function).

B. Statutory and Regulatory Background

Under section 183(e) of the CAA, EPA conducted a study of VOC emissions from the use of consumer and commercial products to assess their potential to contribute to levels of ozone that violate the National Ambient Air Quality Standards (NAAQS) for ozone, and to establish criteria for regulating VOC emissions from these products. Section 183(e) of the CAA directed EPA to list for regulation those categories of products that account for at least 80 percent of the VOC emissions, on a reactivity-adjusted basis, from consumer and commercial products in areas that violate the NAAQS for ozone (i.e., ozone nonattainment areas), and to divide the list of categories to be regulated into four groups.

EPA published the initial list in the **Federal Register** on March 23, 1995 (60 FR 15264). In that notice, EPA stated that it may amend the list of products for regulation, and the groups of product categories listed for regulation, in order to achieve an effective regulatory program in accordance with EPA's discretion under CAA section 183(e). EPA has revised the list several times. Most recently, in May 2006, EPA revised the list to add one product category, portable fuel containers, and to remove one product category, petroleum dry cleaning solvents. See 71 FR 28320 (May 16, 2006). The aerosol spray paints (aerosol coatings) category currently is listed for regulation as part of Group III of the CAA section 183(e) list.

CAA section 183(e) directs EPA to regulate consumer and commercial products using ''best available controls'' (BAC). CAA section 183(e)(1)(A) defines BAC as ''the degree of emissions reduction that the Administrator

determines, on the basis of technological and economic feasibility, health, environmental, and energy impacts, is achievable through the application of the most effective equipment, measures, processes, methods, systems or techniques, including chemical reformulation, product or feedstock substitution, repackaging, and directions for use, consumption, storage, or disposal.'' CAA section 183(e) also provides EPA with authority to use any system or systems of regulation that EPA determines is the most appropriate for the product category. Under CAA section 183(e)(4), EPA can impose ''any system or systems of regulation as the Administrator deems appropriate, including requirements for registration and labeling, self-monitoring and reporting, prohibitions, limitations, or economic incentives (including marketable permits and auctions of emissions rights) concerning the manufacture, processing, distribution, use, consumption or disposal of the product.'' Under these provisions, EPA has previously issued national regulations for architectural coatings, autobody refinishing coatings, consumer products, and portable fuel containers.[1] [2] [3] [4] [5]

For any category of consumer or commercial products, the Administrator may issue control techniques guidelines (CTG) in lieu of national regulations if the Administrator determines that such guidance will be substantially as effective as a national regulation in reducing emissions of VOC which contribute to ozone levels in areas which violate the NAAQS for ozone. In many cases, a CTG can be an effective regulatory approach to reduce emissions of VOC in nonattainment areas because of the nature of the specific product and the uses of such product. A critical distinction between a national rule and a CTG is that a CTG may include provisions that affect the users of the products. For other product categories, such as wood furniture coatings and shipbuilding coatings, EPA has previously determined that, under CAA section 183(e)(3)(C), a CTG would be substantially as effective as a national rule and, therefore, issued CTGs to provide guidance to States for development of appropriate State regulations. Most recently, EPA determined that a CTG would be substantially as effective as a national rule for three other Group III categories: Paper, Film and Foil Coating; Metal Furniture Coating; and Large Appliance Coating.[6]

For the category of aerosol coatings, EPA has determined that a national rule applicable nationwide is the best system of regulation to achieve necessary VOC emission reductions from this type of product. Aerosol coatings are typically used in relatively small amounts by consumers and others on an occasional basis and at varying times and locations. Under such circumstances, reformulation of the VOC content of the products is a more feasible way to achieve VOC emission reductions, rather than through a CTG approach that would only affect a smaller number of relatively large users.

Aerosol coatings regulations are already in place in three States (California, Oregon, and Washington), and other States are considering developing regulations for these products. For the companies that market aerosol coatings in different States, trying to fulfill the differing requirements of State rules may create administrative, technical, and marketing problems. Although Section 183(e) does not preempt States from having more stringent State standards, EPA's national rule is expected to provide some degree of consistency, predictability, and administrative ease for the industry. A national rule also helps States reduce potential compliance problems associated with noncompliant coatings being transported into nonattainment areas from neighboring areas and neighboring States. A national rule will also enable States to obtain needed VOC emission reductions from this sector in the near term, without having to expend their limited resources to develop similar rules in each State.[7]

C. Photochemical Reactivity

There are thousands of individual species of VOC that can participate in a series of reactions involving nitrogen oxides (NO_X) and the energy from sunlight, resulting in the formation of ozone. The impact of a given species of VOC on formation of ground-level ozone is sometimes referred to as its ''reactivity.'' It is generally understood that not all VOC are equal in their effects on ground-level ozone formation. Some VOC react extremely slowly and changes in their emissions have limited effects on ozone pollution episodes. Some VOC form ozone more quickly than other VOC, or they may form more ozone than other VOC. Other VOC not only form ozone themselves, but also act as catalysts and enhance ozone formation from other VOC. By distinguishing between more reactive and less reactive VOC, however, EPA concludes that it may be possible to develop regulations that will decrease ozone concentrations further or more efficiently than by controlling all VOC equally.

Assigning a value to the reactivity of a specific VOC species is a complex undertaking. Reactivity is not simply a property of the compound itself; it is a property of both the compound and the environment in which the compound is found. Therefore, the reactivity of a specific VOC varies with VOC:NO_X ratios, meteorological conditions, the mix of other VOC in the atmosphere, and the time interval of interest. Designing an effective regulation that takes account of these interactions is difficult. Implementing and enforcing such a regulation requires an extra burden for both industry and regulators, as those impacted by the rule must characterize and track the full chemical composition of VOC emissions rather than only having to track total VOC content as is required by traditional mass-based rules. EPA's September 13, 2005, final rule approving a comparable reactivity-based aerosol coating rule as part of the California State Implementation Plan for ozone contains additional background information on photochemical reactivity.[8] Recently, EPA issued interim guidance to States regarding the use of VOC reactivity information in the development of ozone control measures.[9]

1. What Research Has Been Conducted on VOC Reactivity?

Much of the initial work on reactivity scales was funded by the California Air

[1] ''National Volatile Organic Compound Emission Standards for Architectural Coatings'' 63 FR 48848, (September 11, 1998).

[2] ''National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings'' 63 FR 48806, (September 11, 1998).

[3] ''Consumer and Commercial Products: Schedule for Regulation'' 63 FR 48792, (September 11, 1998)

[4] National Volatile Organic Compound Emission Standards for Consumer Products'' 63 FR 48819, (September 11, 1998).

[5] ''National Volatile Organic Compound Emission Standards for Portable Fuel Containers'' 72 FR 8428, (February 26, 2007).

[6] ''Consumer and Commercial Products: Control Techniques Guidelines in Lieu of Regulations for Paper, Film, and Foil Coatings; Metal Furniture Coatings; and Large Appliance Coatings'' 72 FR 57215, (October 9, 2007).

[7] Courts have already approved EPA's creation of national rules under section 183(e). *See, ALARM Caucus* v. *EPA,* 215 F.3d 61,76 (D.C. Cir. 2000), *cert. denied,* 532 U.S. 1018 (2001).

[8] ''Revisions to the California State Implementation Plan and Revision to the Definition of Volatile Organic Compounds (VOC)-Removal of VOC Exemptions for California's Aerosol Coating Products Reactivity-based Regulation'' 70 FR 53930, (September 13, 2005).

[9] ''Interim Guidance on Control of Volatile Organic Compounds in Ozone State Implementation Plans'') 70 FR 54046, (September 13, 2005).

Resources Board (CARB), which was interested in comparing the reactivity of emissions from different alternative fuel vehicles. In the late 1980s, CARB provided funding to William P. L. Carter at the University of California to develop a reactivity scale. Carter investigated 18 different methods of ranking the reactivity of individual VOC in the atmosphere using a single-cell trajectory model with a state-of-the-art chemical reaction mechanism.[10] Carter suggested three scales for further consideration:

i. Maximum Incremental Reactivity (MIR) scale—an ozone yield scale derived by adjusting the NO_X emissions in a base case to yield the highest incremental reactivity of the base reactive organic gas mixture.

ii. Maximum Ozone Incremental Reactivity (MOIR) scale—an ozone yield scale derived by adjusting the NO_X emission in a base case to yield the highest peak ozone concentration.

iii. Equal Benefit Incremental Reactivity (EBIR) scale—an ozone yield scale derived by adjusting the NO_X emissions in a base case scenario so VOC and NO_X reductions are equally effective in reducing ozone.

Carter concluded that, if only one scale is used for regulatory purposes, the MIR scale is the most appropriate.[11] The MIR scale is defined in terms of environmental conditions where ozone production is most sensitive to changes in hydrocarbon emissions and, therefore, represents conditions where hydrocarbon controls would be the most effective. CARB used the MIR scale to establish fuel-neutral VOC emissions limits in its low-emitting vehicle and alternative fuels regulation.[12] [13] Subsequently, Carter has updated the MIR scale several times as the chemical mechanisms in the model used to derive the scale have evolved with new scientific information. CARB incorporated a 1999 version of the MIR scale in its own aerosol coatings rule. The latest revision to the MIR scale was issued in 2003.

In addition to Carter's work, there have been other attempts to create reactivity scales. One such effort is the work of R.G. Derwent and co-workers, who have published articles on a scale called the photochemical ozone creation potential (POCP) scale.[14] [15] This scale was designed for the emissions and meteorological conditions prevalent in Europe. The POCP scale is generally consistent with that of Carter, although there are some differences because it uses a different model, chemical mechanism, and emission and meteorological scenarios. Despite these differences, there is a good correlation of r^2=0.9 between the results of the POCP and the MIR scales.[16]

As CARB worked to develop reactivity-based regulations in California, EPA began to explore the implications of applying reactivity scales in other parts of the country. In developing its regulations, CARB has maintained that the MIR scale is the most appropriate metric for application in California, but cautioned that its research has focused on California atmospheric conditions and that the suitability of the MIR scale for regulatory purposes in other areas has not been demonstrated. In particular, specific concerns have been raised about the suitability of using the MIR scale in relation to multi-day stagnation or transport scenarios or over geographic regions with very different VOC:NO_X ratios than those of California.

In 1998, EPA participated in the formation of the Reactivity Research Working Group (RRWG), which was organized to help develop an improved scientific basis for reactivity-related regulatory policies.[16] All interested parties were invited to participate. Since that time, representatives from EPA, CARB, Environment Canada, States, academia, and industry have met in public RRWG meetings to discuss and coordinate research that would support this goal.

The RRWG has organized a series of research efforts to explore:

i. The sensitivity of ozone to VOC mass reductions and changes in VOC composition under a variety of environmental conditions;

ii. The derivation and evaluation of reactivity scales using photochemical airshed models under a variety of environmental conditions;

iii. The development of emissions inventory processing tools for exploring reactivity-based strategies; and

iv. The fate of VOC emissions and their availability for atmospheric reactions.

This research has led to a number of findings that increase EPA's confidence in the ability to develop regulatory approaches that differentiate between specific VOC on the basis of relative reactivity. The first two research objectives listed above were explored in a series of three parallel modeling studies that resulted in four reports and one journal article.[17] [18] [19] [20] [21] EPA commissioned a review of these reports to address a series of policy-relevant science questions.[22] In 2007, an additional peer review was commissioned by EPA to assess the appropriateness of basing a national aerosol coatings regulation on reactivity. Generally, the peer reviews support the appropriateness of the use of the box-model based MIR metric nationwide for the aerosol coatings category. The results are available in the rulemaking docket.

The results of the RRWG-organized study and the subsequent reviews suggest that there is good correlation between different relative reactivity metrics calculated with photochemical airshed models, regardless of the choice of model, model domain, scenario, or averaging times. Moreover, the scales calculated with photochemical airshed models correlate relatively well with the MIR metric derived with a single cell, one-dimensional box model. Prior to the

[10] Carter, W. P. L. (1994) ''Development of ozone reactivity scales for organic gases,'' *J. Air Waste Manage. Assoc.,* 44: 881–899.

[11] ''Initial Statement of Reasons for the California Aerosol Coatings Regulation, California Air Resources Board,'' 2000.

[12] California Air Resources Board ''Proposed Regulations for Low-Emission Vehicles and Clean Fuels—Staff Report and Technical Support Document,'' State of California, Air Resources Board, P.O. Box 2815, Sacramento, CA 95812, August 13, 1990.

[13] California Air Resources Board ''Proposed Regulations for Low-Emission Vehicles and Clean Fuels—Final Statement of Reasons,'' State of California, Air Resources Board, July 1991.

[14] Derwent, R.G., M.E. Jenkin, S.M. Saunders and M.J. Pilling (2001) ''Characterization of the Reactivities of Volatile Organic Compounds Using a Master Chemical Mechanism,'' J. Air Waste Management Assoc., 51: 699–707.

[15] Derwent, R.G., M.E. Jenkin, S.M. Saunders and M.J. Pilling (1998) ''Photochemical Ozone Creation Potentials for Organic Compounds in Northwest Europe Calculated with a Master Chemical Mechanism,'' Atmos. Env., 32(14/15):2429–2441.

[16] See *http://www.narsto.org/section.src?SID=10.*

[17] Carter, W.P.L., G. Tonnesen, and G. Yarwood (2003) Investigation of VOC Reactivity Effects Using Existing Regional Air Quality Models, Report to American Chemistry Council, Contract SC–20.0-UCR-VOC-RRWG, April 17, 2003.

[18] Hakami, A., M.S. Bergin, and A.G. Russell (2003) Assessment of the Ozone and Aerosol Formation Potentials (Reactivities) of Organic Compounds over the Eastern United States, Final Report, Prepared for California Air Resources Board, Contract No. 00–339, January 2003.

[19] Hakami, A., M.S. Bergin, and A.G. Russell (2004a) Ozone Formation Potential of Organic Compounds in the Eastern United States: A Comparison of Episodes, Inventories, and Domains, Environ. Sci. Technol. 2004, 38, 6748–6759.

[20] Hakami, A., M. Arhami, and A.G. Russell (2004b) Further Analysis of VOC Reactivity Metrics and Scales, Final Report to the U.S. EPA, Contract #4D–5751–NAEX, July 2004.

[21] Arunachalam S., R. Mathur, A. Holland, M.R. Lee, D. Olerud, Jr., and H. Jeffries (2003) Investigation of VOC Reactivity Assessment with Comprehensive Air Quality Modeling, Prepared for U.S. EPA, GSA Contract # GS–35F–0067K, Task Order ID: 4TCG68022755, June 2003.

[22] Derwent, R.G. (2004) Evaluation and Characterization of Reactivity Metrics, Final Draft, Report to the U.S. EPA, Order No. 4D–5844-NATX, November 2004.

RRWG-organized studies, little analysis of the robustness of the box-model derived MIR metric and its applicability to environmental conditions outside California had been conducted. Although these studies were not specifically designed to test the robustness of the box-model derived MIR metrics, the results suggest that the MIR metric is relatively robust.

D. Role of Reactivity in VOC/Ozone Regulations

Historically, EPA's general approach to regulation of VOC emissions has been based upon control of total VOC by mass, without distinguishing between individual species of VOC. EPA considered the regulation of VOC by mass to be the most effective and practical approach based upon the scientific and technical information available when EPA developed its VOC control policy.

EPA issued the first version of its VOC control policy in 1971, as part of EPA's State Implementation Plan (SIP) preparation guidance.[23] In that guidance, EPA emphasized the need to reduce the total mass of VOC emissions, but also suggested that substitution of one compound for another might be useful when it would result in a clearly evident decrease in reactivity and thus tend to reduce photochemical oxidant formation. This latter statement encouraged States to promulgate SIPs with VOC emission substitution provisions similar to the Los Angeles County Air Pollution Control District's (LACAPCD) Rule 66, which allowed some VOC that were believed to have low to moderate reactivity to be exempted from control. The exempt status of many of those VOC was questioned a few years later, when research results indicated that, although some of those compounds do not produce much ozone close to the source, they may produce significant amounts of ozone after they are transported downwind from urban areas.

In 1977, further research led EPA to issue a revised VOC policy under the title ''Recommended Policy on Control of Volatile Organic Compounds,'' (42 FR 35314, July 8, 1977), offering its own, more limited, list of exempt organic compounds. The 1977 policy identified four compounds that have very low photochemical reactivity and determined that their contribution to ozone formation and accumulation could be considered negligible. The policy exempted these ''negligibly reactive'' compounds from VOC emissions limitations in programs designed to meet the ozone NAAQS. Since 1977, EPA has added other compounds to the list of negligibly reactive compounds based on new information as it has been developed. In 1992, EPA adopted a formal regulatory definition of VOC for use in SIPs, which explicitly excludes compounds that have been identified as negligibly reactive [40 CFR 51.100(s)].

To date, EPA has exempted 54 compounds or classes of compounds in this manner. In effect, EPA's current VOC exemption policy has generally resulted in a two bin system in which most compounds are treated equally as VOC, and are controlled. A separate smaller group of compounds are treated as negligibly reactive, and are exempt from VOC controls.[24] This approach was intended to encourage the reduction of emissions of all VOC that participate in ozone formation. From one perspective, it appears that this approach has been relatively successful. EPA estimates that, between 1970 and 2003, VOC emissions from man-made sources nationwide declined by 54 percent. This decline in VOC emissions has helped to decrease average ozone concentration by 29 percent (based on 1-hour averages) and 21 percent (based on 8-hour averages) between 1980 and 2003. These reductions occurred even though, between 1970 and 2003, population, vehicle miles traveled, and gross domestic product rose 39 percent, 155 percent and 176 percent, respectively.[25]

On the other hand, some have argued that a reactivity-based approach for reducing VOC emissions would be more effective than the current mass-based approach. One group of researchers conducted a detailed modeling study of the Los Angeles area and concluded that, compared to the current approach, a reactivity-based approach could achieve the same reductions in ozone concentrations at significantly less cost or, for a given cost, could achieve a significantly greater reduction in ozone concentrations.[26] The traditional approach to VOC control that focused on reducing the overall mass of emissions may be adequate in some areas of the country. However, EPA's recent SIP guidance recognizes that approaches to VOC control that differentiate between VOC based on relative reactivity are likely to be more effective and efficient under certain circumstances.[27] In particular, reactivity-based approaches are likely to be important in areas for which aggressive VOC control is a key strategy for reducing ozone concentrations. Such areas include:

- Areas with persistent ozone nonattainment problems;
- Urbanized or other NO_X-rich areas where ozone formation is particularly sensitive to changes in VOC emissions;
- Areas that have already implemented VOC reasonably available control technology (RACT) measures and need additional VOC emission reductions.

In these areas, there are a variety of possible ways of addressing VOC reactivity in the SIP development process, including:

- Developing accurate, speciated VOC emissions inventories.
- Prioritizing control measures using reactivity metrics.
- Targeting emissions of highly-reactive VOC compounds with specific control measures.
- Encouraging VOC substitution and composition changes using reactivity-weighted emission limits.

The CARB aerosol coatings rule is an example of this last application of the concept of reactivity. CARB's reactivity-based rule for aerosol coatings was designed to encourage the use of compounds that are less effective at producing ozone. It contains limits for aerosol coatings expressed as grams of ozone formed per gram of product instead of the more traditional limits expressed as percent VOC by mass. EPA approved CARB's aerosol coatings rule as part of the California SIP for ozone. EPA's national aerosol coatings rule builds largely upon CARB's efforts to regulate this product category using the relative reactivity approach.

E. The Aerosol Coating Industry

Aerosol coatings include all coatings that are specially formulated and

[23] ''Requirements for Preparation, Adoption and Submittal of Implementation Plans'', Appendix B, 36 FR 15495, (August 14, 1971).

[24] For some analytical purposes, EPA has distinguished between VOC and ''highly reactive'' VOC, such as in the EPA's initial evaluation of consumer products for regulation. *See,* ''Final Listing,'' 63 FR 48792, 48795–6 (Sept. 11, 1998) (explaining EPA's approach); *see also, ALARM Caucus* v. *EPA,* 215 F. 3d 61, 69–73 (D. C. Cir. 2000), *cert. denied,* 532 U.S. 1018 (2001) (approving EPA's approach as meeting the requirements of CAA section 183(e)).

[25] ''Latest Findings on National Air Quality: 2002 Status and Trends,'' EPA 454/K–03–001, (August 2003); and ''The Ozone Report Measuring Progress through 2003,'' EPA 454/K–04-001, (April 2004); Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

[26] A. Russell, J. Milford, M. S. Bergin, S. McBride, L. McNair, Y. Yang, W. R. Stockwell, B. Croes, ''Urban Ozone Control and Atmospheric Reactivity of Organic Gases,'' Science, 269: 491–495, (1995).

[27] ''Interim Guidance on Control of Volatile Organic Compounds in Ozone State Implementation Plans,'' 70 FR 54046, September 13, 2005).

packaged for use in pressurized cans. They are used by both professional and do-it-yourself (DIY) consumers. The DIY segment accounts for approximately 80 percent of all sales. The remainder of aerosol coatings is sold for industrial maintenance and original equipment manufacturer use. Aerosol coatings are used for a number of applications including small domestic coating jobs, field and construction site marking, and touch-up of marks and scratches in paintwork of automobiles, appliances and machinery.

The aerosol coatings industry includes the formulators and manufacturers of the concentrated product. These manufacturers may package the product or they may use toll fillers (processors). These toll fillers may work not only with the large manufacturers, but for other coating manufacturers who do not have the specialized equipment necessary to fill aerosol containers. The fillers may then supply the product to coating dealers, home supply stores, distributors, company-owned stores and industrial customers.

An aerosol consists of a gas in which liquid or solid substances may be dispensed. Aerosol coatings are pressurized coatings that, like other coatings, consist of pigments and resins and solvents. However, aerosol coatings also contain a propellant that dispenses the product ingredients. A controlled amount of propellant in the product vaporizes as it leaves the container, creating the aerosol spray. The combination of product and propellant is finely tuned to produce the correct concentration and spray pattern for an effective product.

Aerosol coatings can be packaged in disposable cans for hand-held applications or for use in specialized equipment in ground traffic/marking applications. As with other coatings, aerosol coatings are available in both solvent-based and water-based formulations.

In developing the final national rule for aerosol coatings, EPA has used the same coating categories, and the same definitions for those categories, previously identified by CARB in its comparable regulation for aerosol coatings. We believe these categories adequately categorize the industry and encompass the range of products included in our own analysis of this category that we conducted in preparing EPA's Report to Congress (EPA–453/R–94–066–A). Use of the same definitions and categories has the added benefit of providing regulated entities with consistency between the CARB and national rules. The categories of aerosol coatings regulated in the final rule include six general categories and 30 specialty categories. Based on a survey of aerosol coating manufacturers conducted by CARB in 1997, VOC emissions from the six general categories together with the specialty category of Ground Traffic/Marking Coatings account for approximately 85 percent of the ozone formed as a result of the use of aerosol coatings. These categories are defined in this regulation and are described in more detail in the docket to this rulemaking.

There are currently no national regulations addressing VOC emissions from aerosol coatings. California, Oregon and Washington are the only States that currently regulate aerosol coating products and Oregon's and Washington's rules are identical to the Tier 1 VOC mass-based limits developed by CARB that became effective in 1996. Unlike other EPA or State regulations and previous CARB regulations for aerosol coatings that regulate VOC ingredients by mass in the traditional approach, the current California regulation for aerosol coatings is designed to limit the ozone formed from VOC emissions from aerosol coatings by establishing limits on the reactivity of the cumulative VOC ingredients of such coatings.

II. Summary of the Final Standards and Changes Since Proposal

This section presents a summary of the major features of the final rule, as well as a summary of the changes made to the proposed rule. The reasons for the changes in the final rule are explained in Section III.

A. Applicability of the Standards and Regulated Entities

The final Aerosol Coatings Reactivity Rule (ACRR) will apply to manufacturers, processors, wholesale distributors, or importers of aerosol coatings used by both the general population (i.e., the ''Do It Yourself'' market) and industrial applications (e.g., at original equipment manufacturers and other industrial sites). This regulation will apply to distributors, if the name of the distributor appears on the label of the aerosol products.

The final rule includes an exemption from the limits in Table 1 of the rule for those manufacturers that make a small annual volume of aerosol coating products, i.e., with a total VOC content by mass of no more than 7,500 kilograms of VOC per year in the aggregate for all aerosol coating products. EPA notes that an exemption under EPA's national rule for aerosol coatings under section 183(e) does not alter any requirements under any applicable State or local regulations. The regulatory language in this final rule has been changed from the proposed rule to clarify the regulated entity that is responsible for compliance with each portion of the regulation.

The final rule includes a provision in section 59.501(f) that allows foreign manufacturers to qualify for the small quantity manufacturer exemption in section 59.501(e). Although foreign manufacturers are not regulated entities under this rule, some may choose to voluntarily become regulated entities in order to qualify for the small quantity manufacturer exemption. To qualify, the foreign manufacturer must (1) meet the same 7500 kilogram per year VOC mass limit that domestic small volume manufacturers must meet; (2) comply with the same recordkeeping and reporting requirements that domestic manufacturers must fulfill; and (3) comply with certain provisions in 40 CFR 59.501(f)(3), which are similar to those used in other EPA rules to ensure that EPA may effectively monitor and implement this rule with respect to foreign entities.[28]

B. VOC Regulated Under This Rule

This rule regulates emissions of VOC from aerosol coatings. Because even less reactive VOC contribute to ozone formation, we are amending the regulatory definition of VOC for purposes of this rule by adding 40 CFR 51.100(s)(7). As provided in that new subsection, any organic compound in the volatile portion of an aerosol coating is counted towards the product's reactivity-based limit if it: (1) Has a reactivity factor (RF) value greater than that of ethane (0.3), or (2) is used in amounts greater than 7.3 percent of the product weight in the product formulation.

Table 2A currently includes those organic compounds we know to be used in aerosol coatings that have an RF value greater than that of ethane (0.3). Under the proposed rule, we had a single de minimis threshold that provided that a compound would not be counted towards the applicable limit, regardless of its reactivity, if the compound represented less than 0.1 percent of the product weight. In the final rule, we have provided a two-part threshold: (1) A 0.1 percent threshold for compounds with an RF value greater than 0.3; and (2) a 7.3 percent threshold

[28] *See* Regulation of Fuels and Fuel Additives: Baseline Requirements for Gasoline Produced by Foreign Refiners, Final Rule, 62 FR 45,533, 45,537–38 (August 28, 1997).

for compounds with an RF value of 0.3 or less.

The rationale for the 7.3 percent threshold is that compounds with an RF value of 0.3 or less will contribute minimally to ozone formation from this product category. We calculated the 7.3 percent figure as follows. We first determined the maximum RF value for a compound, which is 22.04 (the default value for compounds of unknown reactivity). We then multiplied that value by 0.1(the proposed percentage threshold for all organic compounds irrespective of their RF value), which resulted in a value of 2.2. To determine an appropriate percentage threshold for organic compounds with an RF value of 0.3 or less, we then divided 2.2 by 0.3 (the RF for ethane) which resulted in the 7.3 percent threshold for such compounds. Therefore, in determining compliance with the limits of this rule, this rule does not require inclusion of de minimis amounts of ingredients taking into consideration the relative reactivity of the compound.

As provided in 40 CFR 59.505(e)(2), if in the future, compounds with an RF value of 0.3 or less are used in amounts greater than or equal to 7.3 percent of a particular aerosol coatings product formulation, then those compounds will be counted towards the applicable limits of this rule at that time.

The emission limits in the rule are expressed in terms of weight of ozone generated from the VOC ingredients per weight of coating material, rather than the traditional weight of VOC ingredients per weight (or volume) of product. EPA has concluded that this approach will reduce the overall amount of ozone that results from the VOC emitted to the atmosphere from these products, while providing regulated entities with greater flexibility to select VOC ingredients for their products. This approach provides incentives to regulated entities to use VOC ingredients that have lower reactivity and that will therefore generate less ozone.

EPA has revised the list of compounds in Table 2A in order to include only those compounds actually used as ingredients in aerosol coating products. In addition, EPA has provided a mechanism to add additional compounds to the table if a regulated entity elects to use them as an ingredient in aerosol coatings.

C. Regulatory Limits

The regulatory limits for the final rule are a series of reactivity limits for six general coating categories and 30 specialty categories of specialty coatings. These reactivity limits are expressed in terms of grams of ozone generated per gram of product. The reactivity of each VOC ingredient is specified in the table of values included in the regulation. No changes have been made to the regulatory limits since proposal.

D. Compliance Dates

The final rule requires all regulated entities to comply by January 1, 2009, for all aerosol coating products, except those that require registration under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 40 CFR 136–136y) (FIFRA), which are not subject to the requirements of this rule until January 1, 2010. The rule also includes a provision that allows regulated entities to seek a compliance extension if they have not previously manufactured, imported, or distributed in California or elsewhere any aerosol coating product that complies with applicable California regulations. This extension would give the regulated entity until January 1, 2011, to comply with the requirements of the final rule.

Beginning on the compliance date, the regulated entities under this rule will be required to conduct initial compliance demonstration calculations for all coating formulations manufactured or filled at each of their facilities, and to maintain compliance demonstration data for each batch of aerosol coating. These calculations and the underlying documents must be maintained for at least 5 years after the product is manufactured, processed, distributed, or imported, and must be submitted to the EPA upon request. The regulated entity may use formulation data to make the compliance calculations; however, EPA is adopting California Air Resources Board Method 310 as the underlying test method (i.e., formulation data must be verifiable with California Air Resources Board Method 310, if requested). Facilities are also allowed to use EPA's Test Method 311.

EPA has added a provision allowing the extension of the compliance date for FIFRA-registered compounds as a revision to the proposed rule. This provision was added to the final rule due to the additional approvals (e.g., approval of labels and formulation changes) that must be obtained for all FIFRA-registered products.

E. Labeling Requirements

The final rule also includes labeling requirements to facilitate implementation and enforcement of the limits. Labels must clearly identify the product category or the category code provided in Table 1 of the regulation, the limit for that product category, and the product date code. If the product date is not obvious from the date code, an explanation of the code is required in the initial notification discussed below. In the final rule, EPA has made a change to allow a regulated entity to develop a facility-specific category code system, if the system is explained in the initial notification.

F. Recordkeeping and Reporting

The final rule includes a requirement for an Initial Notification from all regulated entities to EPA at least 90 days before the compliance date. This notification will provide basic information about the regulated entity as well as contact information for the certifying official. In addition, this notification will need to explain the product date code system used to label products and the category code system, if the facility is not using the default category codes included in Table 1. The Initial Notification must also include VOC formulation data for each aerosol coatings product that is subject to this rule. The formulation data must provide the weight fraction (g compound/g product) for each VOC compound used in the product in an amount equal to or greater than 0.1 percent. The notification must also identify any volatile organic compound or mixture that is not currently listed in Table 2A, 2B, or 2C, if that compound or mixture will be used in an aerosol coatings formulation. Finally, the notification must include a statement certifying that all of the regulated entity's products will be in compliance with the limits by the compliance date.

The regulated entity is required to submit a revised notification if there is a change in the information in the Initial Notification, with the exception of changes to product formulations. The regulated entity is not required to submit a revised notification if the VOC formulations submitted in its Initial Notification change. The regulated entity is required to submit a revised notification if the manufacturer, for example, adds a new coating category, changes the product date code system or batch definition, or begins to use a VOC that is not listed in Table 2A, 2B, or 2C.

The regulated entity is required to maintain compliance calculations for each of its aerosol coatings formulations. For each batch of a particular formulation, the regulated entity must maintain records of the date(s) the batch was manufactured, the volume of the batch, and the VOC formula for the formulation. Records of these calculations must be maintained for 5 years after the product is manufactured, processed, distributed for

wholesale, or imported for sale or distribution in interstate commerce in the United States. The regulated entity must supply this information to EPA within 60 days of a written request. The final rule includes the addition of a provision that allows for manufacturers or importers to accept the responsibility for recordkeeping and reporting requirements that would otherwise be required of their distributors.

The promulgated rule requires that every 3 years, beginning with calendar year 2011, each regulated entity must submit a triennial report. The triennial report would provide updated VOC formulation data and, for each VOC formulation, the total mass of each individual VOC or mixture used as ingredients in the aerosol coatings manufactured, imported, or distributed that year. This information must be provided only for the second year of the reporting cycle, which in the case of the first report would be information from 2010. Subsequent reports will be required at three year intervals. In other words, a report containing data from 2013 will be due in 2014, a report containing data from 2016 will be due in 2017, and so forth. EPA intends to provide mechanisms for regulated entities to provide this information through the electronic submission facilities being expanded under the National Emissions Inventory (NEI) program and will provide additional information and guidance to regulated entities before the first report is due. This report has been added to the final rule to address concerns raised during the public comment period, as explained in section III.E of this preamble.

The final rule requires those small manufacturers who qualify for exemption from the limits of Table 1 of subpart E to make an annual report to EPA providing necessary information and documentation to establish that the products made by the entity should be exempt.

EPA notes that the contents of any reports, including the VOC composition of the coatings subject to this rule, are ''emissions data'' under section 114 of the CAA and EPA's regulatory definition of such term in 40 CFR part 2. As such, this information must be available to the public regardless of whether EPA obtains the information through a reporting requirement or through a specific request to the regulated entity. Therefore, such information is not eligible for treatment as ''confidential business information'' under 40 CFR 59.516 of this rule.

G. Variance

The final rule allows regulated entities to submit a written application to EPA requesting a temporary variance if, for reasons beyond their reasonable control, they cannot comply with the requirements of the rule. An approved variance order would specify a final compliance date and a condition that imposes increments of progress necessary to assure timely compliance. A variance would end immediately if the regulated entity failed to comply with any term or condition of the variance. The Administrator will provide special consideration to variance requests from regulated entities, particularly small businesses that have not marketed their products in areas subject to State regulations for these products prior to this rulemaking. EPA notes that a variance under EPA's national rule for aerosol coatings under section 183(e) does not alter any requirements under any applicable State or local regulations. No changes were made to this section since the proposal.

H. Test Methods

Although regulated entities may use formulation data to demonstrate compliance with the reactivity limits, EPA concludes it is also necessary to have test methods in place that can be used to verify the accuracy of the formulation data. Therefore, we have included two test methods that may be used by regulated entities or EPA to determine compliance with the reactivity limits. In those cases where the formulation data and test data are not in agreement, data collected using the approved test methods will prevail. Regulated entities or regulatory agencies may use either California Air Resources Board Method 310—Determination of Volatile Organic Compounds in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products, or EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) to determine the reactive organic compound content of an aerosol coating. California Air Resources Board Method 310 includes some test procedures that are not required to determine the VOC content of aerosol coatings; for example, California Air Resources Board Method 310 incorporates EPA Method 24 for determining the VOC content of a coating. We have identified those sections of California Air Resources Board Method 310 that are not required for compliance demonstration purposes in the regulation. EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) was originally developed for liquid coatings, so it does not include provisions for the collection of the propellant portion of an aerosol coating. Therefore, those choosing to use EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) must separate the aerosol propellant from the coating using either ASTM D3063–94 or ASTM D 3074–94. There were no changes to the test methods in the final rule.

III. Response to Significant Comments

During the public comment period, we received a total of 18 comment letters. Of these, seven were brief letters in support of the proposed regulation. A summary of the most significant comments is presented below. A summary of all comments received on this rule, as well as complete responses to each of these comments, are presented in the docket (EPA–HQ–OAR–2006–0971).

A. Format of Regulation

Several commenters discussed the use of a reactivity-based rule versus a mass-based rule. Two commenters fully supported the reactivity-based rule, while five commenters raised some concerns over some aspects of this approach.

The commenters supporting the rule generally supported the use of a reactivity-based approach both nationally and in California. One commenter stated that EPA did a good job in evaluating the reactivity regulation in California and the feasibility of making it apply nationwide, calling it a ''bold step forward in the arena of air quality regulations.'' Another commenter stated that ''[t]he rule is an important advancement in the use of reactivity-based emissions regulations for VOC.'' The commenter provided the following points in support of this rule and the future use of reactivity-based VOC emission limits in other consumer product and coating standards:

1. Reactivity-based VOC emission regulations are more appropriate and effective for addressing the environmental concern of interest, ozone formation potential.

2. This national proposed rule is based on an established CARB regulation for aerosol coatings which has already been approved by EPA and in use for several years.

3. Reactivity-based VOC emission regulations provide product formulators with more options for meeting environmental performance standards while providing technically feasible product performance, and stimulating future product development enhancements.

4. There is evidence that lower mass-based VOC limits in some products may be leading to the increased use of more photochemically reactive VOC, eliminating some of the anticipated environmental benefit (ozone reduction) of these regulations, and possibly increasing the actual ozone formation potential of the products themselves.

This commenter also stated that the reactivity-based approach is consistent with EPA's September 2005 ''Interim Guidance on Control of Volatile Organic Compounds in Ozone State Implementation Plans,'' which specifically ''encourages States to consider recent scientific information on the photochemical reactivity of volatile organic compounds in the development of state implementation plans designed to meet the national ambient air quality standards for ozone [70 FR 54046–54051; September 13, 2005].''

The commenter concluded that reactivity-based VOC standards should not be considered ''only as a supplement to mass-based approaches, but as a scientifically valid and appropriate means for controlling ozone formation.'' The commenter also stated that in its approval of the CARB regulation, EPA appropriately stated that the reactivity-based rule will improve the SIP in part by ''creating an incentive for the use of solvents with relatively low contribution to ozone formation [70 FR 1642].'' The commenter further stated that some VOC mass-based limits in the previous version of CARB's aerosol coatings rule ''presented particularly difficult reformulation challenges'' for product manufacturers [70 FR 1642]. The commenter stated that EPA correctly noted that CARB's regulation will preserve the air quality benefits of its previous rule, while at the same time allowing manufacturers greater flexibility in reformulating their products, by replacing existing mass-based VOC limits for aerosol spray coatings with reactivity-based limits that are designed to achieve equivalent air quality benefits [70 FR 1642]. The commenter concluded that expanding this aerosol coating regulation to the rest of the United States expands the benefits of this working reactivity-based VOC regulation to other areas of the United States where ozone formation is a concern, while allowing aerosol coating manufacturers to develop single formulations for the entire United States.

Several commenters raised concerns over some aspects of an approach based on reactivity. These commenters stated that a reactivity-based approach may have merit, but only if EPA first addresses numerous ''unanswered questions'' about the potential adverse impact of such an approach on other equally, if not more, important components of air quality management programs, such as the effect on ambient fine particulate matter ($PM_{2.5}$) levels and air toxics. The commenters also raised the issues of downwind ozone impacts and enforceability. One commenter provided an extensive history of the evolution of EPA's use of reactivity, noting that EPA is not obligated to issue a reactivity-based regulation, stating that the required reactivity-based portion of EPA's obligation under § 183(e) was fulfilled during the listing process. The commenter questioned whether EPA had adequately addressed all possible impacts of a reactivity-based approach before proceeding with the proposal.

Some commenters advocated that EPA should issue a mass-based rule, rather than one based on reactivity. The commenters pointed to the uncertainty of the use of a reactivity-based approach, including concerns over the toxicity of pollutants that are used as substitutes, the potential inter-relationship with $PM_{2.5}$ issues, downwind ozone and enforceability concerns. The commenters concluded that, given these concerns, and the fact that a fully implemented rule only yields a benefit equivalent to a 19 percent reduction of VOC, that EPA may be ''better served to establish a National rule based on the 1996 CARB rule amended with 2002 mass-based limits known to be feasible.'' The commenters stated that this is the approach used by two other States, Oregon and Washington, that have aerosol coating rules. One commenter further stated that because these limits would be feasible for all manufacturers, the small manufacturer exemption, the extended compliance date, and the variance provisions would all be unnecessary. Therefore, the commenter concluded that a mass-based approach would achieve the most reductions and would allow EPA time to conduct the required investigations to address issues and not ''rely on expectations that may not hold to be true.'' One commenter stated that ''EPA appears to have neglected to consider an approach that combines mass-based and reactivity-based components.''

EPA considered these comments, but we still conclude that the reactivity-based approach for this rule is appropriate. Under CAA section 183(e), EPA is charged with developing regulations that implement BAC for the purposes of decreasing ground-level ozone formation. For aerosol coatings, EPA has determined that the proposed reactivity-based regulation remains BAC. The reactivity-based limits are based on those adopted in CARB's reactivity-based rule and are designed to achieve a comparable decrease in ozone formation that would have been achieved by CARB's 2002 mass-based limits, which are lower than CARB's 1996 mass-based limits. Moreover, while some of CARB's 2002 mass-based limits are now considered unfeasible and are not in force, the reactivity-based limits are now in effect and many manufacturers are producing and selling compliant products. Oregon and Washington have adopted CARB's 1996 mass-based limits. However, even if these limits were lowered for some categories to the 2002 limits, where deemed feasible, this hybrid approach proposed by the commenters would not achieve the same level of ozone decrease that the reactivity-based limits will. Furthermore, it is not clear that manufacturers who are not currently subject to the CARB reactivity-based limits would have any more or less difficulty meeting the hybrid mass limits than they would meeting the reactivity-based limits in the proposed rule. In other words, any mass-based rule would also likely include provisions for small businesses and other variances.

The determination of BAC depends on EPA's determination that the proposed relative reactivity factors can be used to reasonably predict the changes in the ozone formation that will occur due to changes in the emissions from this source category. After thoughtful consideration of the available research, EPA has concluded that this determination is justified. EPA has followed and contributed to the development of the science underlying reactivity-based regulations since such an approach was considered in the early 1990s. EPA's position on the acceptability of reactivity scales has evolved along with the science. The most recent results of research performed under the RRWG, cited in section I of this preamble, provide evidence that the relative reactivity factors in the proposed rule are reasonably robust over a wide variety of environmental conditions. Concerns about the potential for increased ozone downwind are addressed in a separate section below.

Although recent research suggests that other reactivity scales may more accurately represent the behavior of ozone in current air quality models, it is not clear that emission limits based on these scales would be achievable or that the use of a different scale would lead to significantly different ozone decreases from this source category. Furthermore, emission limits based on a different scale than that used by CARB would lead to increased costs to comply. Therefore, EPA has determined that use of the proposed relative reactivity factors is reasonable and will lead to net decreases of ground-level ozone. The consideration of fine particle formation, toxics exposures, and stratospheric ozone depletion are addressed below in a separate section, as are concerns about the complexity of enforcement.

One commenter disagreed with EPA's statement in the preamble that this regulation was needed because there are areas of the country that need VOC substitution strategies to address nonattainment issues. The commenter argued that there are many opportunities to reduce VOC mass by implementing readily available and proven programs ''before embarking into VOC substitution.'' The commenter continued that most nonattainment areas around the country have not taken aggressive steps to limit VOC. Therefore, the commenter contended that there are significant reductions that can be obtained from programs, such as implementing RACT or updating decades-old RACT programs, fuel strategies, and other area source regulations like consumer products, architectural coatings, and Stage I vapor recovery.

EPA disagrees with this commenter. Several of the commenters on the proposed rule inaccurately portray the choice between mass-based emission limits and reactivity-based emission limits as a choice between emission reductions and emission substitutions. For aerosol coating products, any new emission limitation, whether it is mass-based or reactivity-based, will be achieved by reformulating the product, thereby changing the composition of the associated emissions. With a reactivity-based limit, the reformulation will be guided by relative reactivity factors that will encourage manufacturers to use lower reactivity compounds and will limit the overall ozone formation associated with the product. All VOC components with an RF value greater than 0.3 are included in the calculation. With a mass-based limit, manufacturers may shift to more powerful solvents, some of which may often be higher in reactivity, and which cumulatively may contribute more to ozone formation. There is no explicit limit on the ozone formation associated with the product. The precise impacts (on ozone, fine particles, air toxics, or other environmental endpoints of concern) of either reactivity-based or mass-based emission limits are difficult to predict given the reformulations that may be used to achieve the limits. However, reactivity-based limits derived using a reasonable set of relative reactivity factors provide the appropriate incentives to shift formulations to compounds with lower reactivity, and limit the overall ozone contribution of the regulated products.

The commenter's assertion that reactivity-based regulations should not be pursued until other mass-based VOC control measures, including RACT, have been implemented or strengthened is not a factor in the decision of how EPA fulfills its obligations under CAA section 183(e) to implement best available controls. However, EPA does believe that traditional mass-based VOC control measures continue to be effective tools for addressing VOC contributions to ozone nonattainment problems in many situations and that reactivity-based control measures are most useful where mass-based controls have reached the limits of technological feasibility. In the case of aerosol coatings, EPA has determined that it is possible to use reactivity-based limits to go beyond what is achievable with mass-based limits, and therefore, has found reactivity-based limits to be BAC for this product category.

B. Downwind Effects and Robustness of Relative Reactivity Scale

Several commenters discussed the state of the science of reactivity and whether EPA's statements about the science of reactivity were correct. Some commenters questioned EPA's statement that the expected realistic changes in the formulation of aerosol products are unlikely to result in noticeable increases in ozone downwind of the source, stating that EPA does not know this to be the case. The commenters asserted that this issue is important ''for the simple fact that ozone nonattainment areas in the Northeastern United States have the highest recorded ozone values downwind of urban centers, and this effort has the potential to increase ozone in the very place where ozone reductions are most needed, confounding the ozone attainment plans that are being developed by the states.'' The commenters also stated that increased ozone downwind from urban centers could result in more impacts to agricultural and forested areas of the country.

One commenter further stated that the statements made in the preamble related to future ozone levels seem to be based on expectations rather than demonstrations based on modeling efforts. The commenter encouraged EPA, given the potential for further tightening of the current ozone NAAQS, to perform studies demonstrating that there would be no increase in downwind ozone ''so that the implementation of this rule does not worsen ozone nonattainment problems found in the Northeastern United States.''

EPA recognizes the commenters' concerns about downwind ozone formation but has concluded that the VOC reformulations resulting from this reactivity-based regulation will reduce overall ozone formation and exposure. First, any enhancements of downwind ozone caused by upwind substitution of larger amounts of less reactive VOC are expected to be smaller than the concurrent reductions of upwind ozone. Carter *et al.* (2003), in modeling large-scale VOC substitution scenarios, found larger local ozone reductions and smaller downwind ozone increases. Similarly, Arunachalam *et al.* (2003) found that ''high-versus-low reactivity substitution'' is ''an effective strategy for reducing high levels of ozone,'' especially in, or downwind of, urban areas. In a modeling exercise conducted to inform this rulemaking, Luecken (2007; see docket) substituted lower reactivity VOC for higher reactivity VOC in the Chicago area and found the resulting downwind ozone disbenefits to be much smaller than the upwind ozone benefits. In general, upwind ozone reductions are expected to occur in or near densely populated urban areas, where ozone levels are highest, thus reducing overall population exposure. Second, downwind areas, particularly remote, rural, or suburban areas, are likely to be NO_X-limited (Sillman, 1999; AQCD, 2006), thus restricting ozone formation from small additional amounts of upwind anthropogenic VOC. The implementation of other regulations such as the Clean Air Interstate Rule will likely reduce NO_X further in such areas. Third, in downwind areas that may be VOC-limited, the simultaneous VOC substitutions occurring in these areas may counterbalance, to some extent, the introduction of VOC from upwind. Fourth, the reductions in upwind reactivity and ozone formation are likely to reduce the direct transport of ozone and ozone precursors such as aldehydes downwind from urban areas.

EPA agrees that modeling can be useful for demonstrating the impacts of regulatory changes. While EPA did not perform nationwide modeling specific to this regulation, the three studies cited above support the EPA's contention that downwind ozone increases are likely to be small, especially compared to upwind ozone reductions. Thus, while additional modeling will continue to shed light on VOC reactivity, there is an adequate basis for proceeding with this reactivity-based regulation. As the science evolves, EPA will continue to invest and participate in research into VOC chemistry and the use of reactivity measures.

One commenter stated that, while reactivity-based approaches may provide significant benefits ''where the science is sufficiently robust to ensure that the expected benefits are achieved in practice,'' the commenter stated that, based on the proposal, ''it is not clear that EPA has adequately addressed all the relevant technical issues or that this reactivity-based regulation is appropriate at this time.'' The commenter notes that EPA must adequately (and accurately) account for the differences in the various environmental conditions (and resulting variations in VOC behavior) throughout the United States. The commenter stated that the complexity of the interactions of VOC in the ambient air makes it extremely difficult to accurately predict the actual VOC forming capacity of a chemical compound. The commenter stated that ''assuming an essentially uniform ''reactivity'' for a compound used in any coating product anywhere in the country presents the potential for an inaccurate assessment of the actual VOC-related effects of the product nationwide.'' The commenter further stated that ''EPA's half-hearted assertion in the proposed rule that its scientific understanding of VOC reactivity has evolved sufficiently to allow it to reliably and accurately predict the behavior of individual species of VOC in a regulatory context is far from unequivocal.''

Another commenter had a different position and asserted that:

> Controlling VOC emissions from coatings and consumer products based on photochemical reactivity is a scientifically sound and appropriate means of addressing ozone formation potential. There can be enormous differences in the capacity of various VOC to react in the atmosphere to form tropospheric ozone. As reflected in EPA's proposal, scientific research shows that photochemical reactivity has a more direct correlation to the ozone-forming potential (i.e., potential air quality impacts) of VOC emissions than does a simple mass-based measure of emissions. The impact of mass-based VOC emissions reductions on ozone formation potential is uncertain and can vary greatly depending on the VOC substitution decisions made to meet specific mass limits. Reactivity-based VOC emissions limits, by considering the rate and mechanism of photo oxidation in the troposphere, are reflective of the actual processes that lead to ozone formation. Relative photochemical reactivity thus provides a more rigorous scientific approach to assessing an individual compound's potential contribution to ozone accumulation than does consideration of its mass alone.

Accordingly, this commenter concluded that EPA's approach is scientifically sound and represents a significant step forward in aerosol coatings regulation.

EPA recognizes the concerns raised by the commenters, but agrees with the latter commenter. EPA acknowledges the difficulty in assessing reactivity in widely different environmental conditions. As noted in the proposal, a compound's reactivity can depend on the VOC:NO_X ratio, meteorological conditions, and the mix of other VOC. Many different methods have been suggested for measuring the reactivity of individual compounds. EPA has chosen the MIR scale, which is an ozone yield scale derived by adjusting the NO_X emissions in a base case simulation to yield the highest incremental reactivity of the base reactive organic gas mixture. These are environmental conditions where ozone production is most sensitive to changes in VOC emissions and, therefore, where VOC controls would be most effective. These tend to reflect conditions in or near urban areas where VOC emissions are most likely to produce ozone, and thus EPA has determined the MIR scale is the most appropriate for regulatory purposes (see also Carter, 1994). Research conducted under the auspices of the RRWG has shown good correlation between the MIR scale and other reactivity scales, including those computed with photochemical airshed models. Also, this research has supported the nationwide applicability of reactivity scales, and peer reviews of the RRWG reports have specifically supported the use of the MIR scale for a nationwide aerosol coatings regulation (see docket). For more detail, refer to the proposal (72 FR 38952). As noted above, EPA will continue to invest and participate in research into VOC chemistry and the use of reactivity measures.

C. Consideration of Other Factors in the Consideration of Best Available Controls

Several commenters presented arguments for numerous factors that should be included in EPA's determination of BAC for aerosol coatings. These factors include the potential impact on ambient PM levels, the potential for increase in emissions of certain hazardous air pollutants (HAP), and potential stratospheric ozone impacts. In addition, one commenter stated that EPA should consider the impact of the rule on agricultural and forest areas.

The commenters concerned with contribution to PM levels were primarily concerned about the aerosol fraction of measured ambient $PM_{2.5}$. The commenters stated that EPA should consider ''negative co-effects'' of the rule on fine particulate matter, because the substitution with compounds with low reactivities could increase the mass of emissions of low reactive compounds, which could impact both primary and secondary ozone formation. The commenter stated that this would be even more important in the near future, as the $PM_{2.5}$ NAAQS is revised and given the fact that $PM_{2.5}$ nonattainment is coincident with ozone nonattainment in many areas in the country. The commenter concluded that EPA must examine the impacts of increasing low reactive VOC on $PM_{2.5}$ before establishing a regulatory framework that encourages substitution.

Several commenters were concerned that EPA did not consider the toxicity of compounds when establishing BAC for this category. Some commenters identified several examples of HAP, including benzene and diisocyanates, with relatively low reactivity factors and noted that EPA overlooked the fact that all VOC are not equal when it comes to their individual toxic potential. The commenters stated that toxicity should be considered in setting emission limits, with one commenter suggesting that EPA consider a substitution protocol for VOC that includes ''low to high'' toxicity in addition to ''low to high'' reactivity.

Another commenter also noted that the table of reactivity factors also includes compounds that have been banned under Title VI of the CAA because they are considered stratospheric ozone depletors.

EPA has addressed the impacts of the factors mentioned by the commenters in the final rule to the extent allowed by the CAA.

With respect to the commenter's concerns about HAP emissions from aerosol coatings, EPA notes that section 183(e) only provides the EPA with authority to regulate VOC emissions from consumer and commercial products for purposes of reducing ozone nonattainment. Other provisions of the Act, such as section 112, provide the statutory mechanism for reduction of

HAP emissions. Thus, although EPA shares the concerns of the commenter about unnecessary exposure to HAPs, the EPA does not have authority like that of the State of California to restrict or ban the use of specific HAPs as ingredients in aerosol coatings. Nevertheless, EPA believes that sufficiently stringent limits can have the beneficial effect of reducing the use of certain HAPs such as toluene and benzene. Because these compounds are highly reactive, the limits of the final rule will serve to restrict the use of these compounds as ingredients in aerosol coatings as a practical matter.

With respect to the comment concerning compounds that are banned under Title VI, EPA is clarifying that the compounds included in 72 FR 38951 are not a list of compounds ''approved'' for use in aerosol coatings. On the contrary, it is merely a list of compounds for which relative reactivity factors have been derived. Therefore, if a compound had been banned by Title VI, or banned for use for any other reason, they cannot be used as ingredients in aerosol coatings.

However, EPA has revisited the decision to include an exhaustive list of compounds in Table 2A. Based on concerns raised by commenters and an internal review at EPA, we have revised Table 2A. That table currently includes those organic compounds we know to be used in aerosol coatings products that: (1) Have an RF value greater than that of ethane (0.3), and (2) are used in amounts greater than 7.3 percent of the product weight. This changes the role of Table 2A from a listing of available reactivity factor (RF) values to a table defining the compounds that have defined RF factors for this rule.

If a regulated entity identifies a compound or mixture of compounds that is not on Table 2A, 2B, or 2C, the regulated entity can still use the compound or mixture as an ingredient, as follows:

(1) The regulated entity can inform EPA that it intends to use the compound and request that the compound be added to Table 2A, 2B, or 2C, pursuant to the procedures in section 59.511(j) of the final rule. However, if the compound has a reactivity factor that is less than 0.30 g O_3/g VOC, and the compound is less than or equal to 7.3 percent by weight in any of your products, the regulated entity can use an RF equal to zero in all calculations. Any requests submitted to EPA on or before June 1, 2008 will be considered, and if appropriate, incorporated into the appropriate Table on or before January 1, 2009.

(2) If the compound does not have an established reactivity factor listed in Table 2A, 2B, or 2C, the compound can be used, provided an RF of 22.04 g O_3/g compound is used in all calculations for that compound. This value, which is equal to the highest RF identified to date, was selected to ensure that the environment is protected while additions to the list are being considered.

In the proposed regulation, we proposed to eliminate all of the exemptions from the definition of VOC listed in the first clause subparagraphs of § 51.100(s). This inadvertently included certain inorganic compounds listed in § 51.100(s) that are not VOC. On further review, EPA concluded that there is no need to eliminate the exemption for organic compounds that have an RF value of 0.3 or less and that represent less than 7.3 percent of a given product formulation.

However, if a regulated entity intends to use an organic compound that is not listed in Table 2A in the final rule as an ingredient in an aerosol coating, then the regulated entity is required to notify EPA via its Initial Notification or an update to that notification. EPA will then add such compounds and their reactivity factors to Table 2A. Until listed in Table 2A, such compounds may be used in aerosol coating products but are assigned the default reactivity factor of 22.04 g O_3/g compound.

Several commenters also provided input on the question raised in the proposal preamble related to a voluntary program for the reduction of HAP. The commenters were all opposed to an additional program, citing existing programs and requirements that already address the inclusion of toxic materials in coatings. For example, the Federal Hazardous Substance Act (FHSA), which requires specific labeling of products that it classifies as ''hazardous substances.'' The FHSA includes any products containing methylene chloride on that list.

EPA is not establishing a voluntary HAP reduction program at this time. Existing programs appear to be sufficient to help ensure that the unwanted outcome of increased toxicity of aerosol coating products does not occur. EPA reserves the right to revisit the potential for such a program, for this or another reactivity-based rulemaking, at a later date.

D. Variance, Small Quantity Manufacturers, Extended Compliance Date

Several commenters expressed concern about both the need for, and equity of, the three provisions in the proposed rule that either extended the compliance date or provided an exemption from the rule. These provisions were the variance provisions in the rule, the exemption for small quantity manufacturers, and the extended compliance date for regulated entities that have not previously marketed coatings compliant with CARB's reactivity based rules.

A few commenters were concerned about the potential for unfair economic advantage created by the small quantity manufacturer exemption. One commenter stated that the exemption for small manufacturers provides a competitive advantage that they could ''readily use'' to expand market share. Some commenters believed that the small quantity exemptions should be available to regulated entities of all sizes and be based on the size of the batch. This commenter gave the example of a coating supplier that provided most coating in bulk, but would supply a small quantity of matching paint in aerosol cans for exact match touch-ups. Another commenter stated that they were unable to support a proposal that specifically exempts manufacturers of certain products from regulatory requirements unless the exemption was available to all manufacturers of that type of product. The latter commenter was concerned with the anti-trust ramifications of providing such an exemption, since it could create a beneficial climate for one manufacturer, but not another.

Some commenters expressed concern that EPA overstated the emission reductions in the rule, given the number of sources that would potentially take advantage of the exemption, variances, and extensions. One commenter stated that the small quantity manufacturer exemption, in particular, would have a substantial impact on the VOC emission reductions achieved by the rule and cautioned that EPA should closely monitor the impacts of these provisions on the overall rule efficacy.

EPA does not agree that the exemption and variance provisions are likely to have a significant impact on the overall effectiveness of this rule. EPA has tailored the small quantity manufacturer exemption to provide relief only to those particularly small entities that would otherwise bear particularly high costs for compliance relative to the small amount of products they produce and, therefore, the small amount of total VOC emissions from such products. The variance provision is, likewise, narrowly tailored and provides only temporary variance from the limits of the rule. Each of these provisions is targeted to small subsets of

regulated entities that would otherwise be disproportionately impacted by this rule.

The two-year compliance extension for facilities that have not previously manufactured coatings compliant with CARB coating limits is provided to ensure that facilities have adequate time to reformulate products to meet the rule. If a regulated entity has not previously developed compliant products, it may take longer (i.e., beyond January 1, 2009) to reformulate and market a new product. However, because EPA estimates that well over 85 percent of the aerosol coatings in the United States have already been reformulated to meet the California limits, we do not expect many facilities to qualify for this provision. Similarly, EPA does not anticipate that a large number of regulated entities will need to request a variance under this rule. In California, only one variance request was ever requested for the comparable CARB aerosol coating rule.

EPA established the small quantity manufacturer exemption with the primary focus of assisting small businesses that may make only a small quantity of aerosol coatings. Because small businesses do not always do business across the country, EPA concluded that it was possible that some may not have previously been subject to the reactivity-based requirements in California. While we have included the costs of developing reformulated products in the cost assessment of this rule, we also recognize that the average cost (i.e., cost on a ''per can'' basis) could be higher for a company producing a smaller product line. Recognizing this, we established this provision to exempt those most likely to experience the highest per-can reformulation costs.

EPA also does not concur with the commenter's concerns that the small quantity manufacturer exemption creates an unfair competitive advantage or antitrust issues. The total mass of VOC per exemption (7500 kg) represents less than 0.01 percent of the total VOC used in aerosol coatings (based on the 1990 survey). Even adjusting for emission reductions that have occurred since 1990, the mass for this exemption would remain well below one percent of the market. We disagree that this small fraction of the total aerosol coating market could give anyone a competitive advantage. Further, a significant expansion in a small quantity manufacturer's market share would likely result in the manufacturer no longer qualifying for the exemption.

Finally, EPA also does not agree that creation of the exemption for small quantity manufacturers creates an antitrust issue. Such issues generally arise where members of an industry collude to create unfair market advantage, as by agreeing not to compete on prices for their respective products. EPA, in its capacity as government regulator, can promulgate regulations with features such as exemptions for certain members of an industry without violation of the applicable statutes and regulations pertaining to antitrust issues. Moreover, EPA is obligated to take the specific concerns of small entities into account in the regulatory process and, where appropriate, to provide mechanisms such as exemptions in order to mitigate disproportionate and unnecessary impacts upon small businesses. In the case of this regulation, EPA has determined that it is appropriate to provide an exemption of this type because it will permit the implementation of a rule that will achieve significant VOC emission reductions across the industry as a whole and the percentage of emissions reductions that will be foregone by virtue of the exemption are anticipated to be *de minimis*.

As discussed in the air impacts section of this preamble, we do not expect any of these provisions to have a significant impact on overall VOC emission reductions that will result from the rule, largely due to the small number of regulated entities that we expect to qualify for these exemptions. Therefore, EPA has concluded that all exemptions should remain in the rule, as proposed. We have made some changes to the regulatory language, particularly with respect to the small quantity manufacturer, to ensure that the provisions are clear.

One commenter asked EPA to clarify whether an importer's products are exempt as specified under the small quantity manufacturer exemption in § 59.501(e). First, EPA notes that the small quantity manufacturer exemption is only available to manufacturers. Second, in response to this comment, EPA has added a provision in § 59.501(f) that specifies how foreign manufacturers may qualify for the small quantity manufacturer exemption.

E. Additional Reporting Requirements

Numerous commenters provided input on the need, or lack of need, for additional reporting requirements, in general, and the annual reporting of formulation data, in particular. Some commenters contended that no additional periodic reporting was warranted, while others stated their belief that the rule is not enforceable without additional reporting.

One commenter argued that more detailed records, including formulation data, must be mandated by this rule. This commenter said that it would be unreasonable for EPA not to provide for adequate data reporting that would allow for meaningful oversight and enforcement of the rule, stating that formulation data are critical to this assessment. The commenter does not believe that the proposed approach (i.e., the regulated entity responding to an EPA request for data) is sufficient. The commenter stated that EPA must include reporting requirements in the rule that will ensure it can quickly and effectively verify compliance and intervene appropriately where a violation occurs. Other commenters supported gathering additional information, with one stating that they believe that without full electronic reporting of all formulation data, the burden on EPA's compliance and enforcement staff would be too great and that any effective enforcement would be impossible.

Other commenters strongly disagreed that additional reporting is warranted. These commenters pointed to the requirements to supply information to EPA on the types of products they manufacture, as well as contact information. They contended that the requirement to supply the more detailed information, including formulation data for the volatile components in their products, is unnecessary. When EPA chose to make a compliance review, there were provisions in the proposed rule that gave EPA the ability to obtain the specific information, as needed. The commenters encouraged EPA to maintain the provisions related to reporting requirements as they were proposed.

EPA appreciates the comments received on this topic from all sides and understands both positions. When EPA is establishing the recordkeeping and reporting requirements for a rule, we have the responsibility to balance the burden imposed by the requirements with the need for a rule that is implementable as a practical matter. We must ensure that the information needed to implement the rule is available, while ensuring that we do not require industry to gather and submit information that will never be used. This rulemaking, the first national VOC rule incorporating reactivity-based limits, raises additional concerns about the types of information that should be gathered. Based on a thoughtful review of the comments and our own review, we have concluded that there are two

basic needs for information: (1) Information that allows EPA (and others) to ensure that the requirements are being met, and (2) information that allows EPA (and others) to assess whether the reactivity-based approach is resulting in the ozone reductions we have determined, based on information we have analyzed to date, should occur. Each of these basic information needs warrant a different approach.

EPA has revised the reporting requirements of the final rule to ensure that adequate information is available. EPA concurs with the commenters who believe that we have an obligation to ensure that our new approach to regulating some VOC sources through the use of reactivity-based limits is working. In the final rule, EPA has included a requirement for regulated entities to provide information about the VOC composition of their products in their Initial Notifications and to update this information every three years, beginning with data for calendar year 2010, along with information about the quantities of individual VOC species in each formulation manufactured, imported, or distributed in the reporting year. This triennial reporting will enable EPA to better assess the efficacy of the reactivity-based approach, including the manner in which the program's requirements are being achieved. For example, the information will enable us to ascertain how manufacturers are responding to the regulation, what the impact of the rule is on the aerosol coatings category, and whether the rule has any unintended consequences or impacts. The information will also enable us to compare the changes in VOC emissions under a mass-based approach as compared to a reactivity-based approach. EPA intends to integrate the triennial report into the expanded electronic reporting processes being developed for the National Emissions Inventory. EPA will provide additional information and guidance to regulated entities prior to the first required triennial report due in 2011. This information will be sent to regulated entities, based on contact information submitted in their Initial Notifications.

IV. Summary of Impacts

This section presents a summary of the impacts expected as a result of this rule. To ensure that the impacts are not underestimated, we followed an approach that would provide conservative estimates for each impact. For environmental impacts, we ensured that our estimated positive impacts (i.e., emission reduction) were not overstated (i.e., we state positive impacts conservatively low). For cost and economic impacts, we ensured that our estimated impacts were not understated (i.e., we state cost and economic impacts conservatively high). This approach ensures that conclusions drawn on the overall impact on facilities, including small businesses, are based on conservative assumptions.

A. Environmental Impacts

In accordance with section 183(e), EPA has evaluated what regulatory approach would constitute ''best available controls'' for this product category, taking into account the considerations noted in the statute. EPA has evaluated the incremental increase or decrease in air pollution, water pollution, and solid waste reduction that would result from implementing the final standards.

1. Air Pollution Impacts

The final rule will reduce the amount of ozone generated from the use of aerosol coatings. Because most States will use the VOC emission reductions resulting from this rule in their ozone SIP planning, we have calculated the reductions associated with the rule in terms of mass VOC emissions and we will refer to a reduction in mass VOC emissions when discussing the impacts of the final regulation. EPA concludes this is appropriate because the reactivity limits were designed to ensure that the ozone reductions that would be achieved by the limits were equivalent to the mass VOC reductions that would have been achieved by the CARB 2002 mass-based VOC limits. However, because the limits actually reduce the amount of ozone generated from the VOC used in aerosol coatings rather than VOC content by mass, the VOC reductions that we refer to are more accurately described as an ''equivalent reduction in VOC emissions.'' We will use the term ''reduction'' in subsequent discussions. Additional information on the method used to calculate the air impacts of the rule are included in the impacts calculation memorandum contained in the docket to this rulemaking.

EPA has estimated that this rule will reduce nationwide emissions of VOC from the use of aerosol coatings by an estimated 17,130 tons (15,570 Mg) from the 1990 baseline. This represents a 19.4 percent reduction from the 1990 baseline of 88,300 tons (80,270 Mg) of VOC emissions from the product category. While we believe that the above numbers accurately assess the impacts of the final rule for SIP credit purposes, we recognize that significant reductions have already occurred as the result of the implementation of the CARB aerosol coatings regulations. Because many manufacturers sell ''CARB compliant'' coatings across the country, some of these VOC emission reductions have already been achieved outside of California. We estimate that approximately 18 percent of the total products sold are not currently compliant with this rule's limits. Therefore, we estimate that this rule will result in additional VOC reductions equivalent to 3,100 tons per year (i.e., 18 percent of 17,130 tons per year).

The reduction of 3,100 tons per year of VOC emissions represents new reductions. However, for ozone SIP purposes, we are providing States that do not currently have aerosol coating regulations in place full credit for the 19.4 percent reduction from the 1990 baseline. This 19.4 percent reduction is equivalent to a 0.114 pound of VOC reduction per capita.

Although we have not quantified the anticipated impacts of this rule on HAP emissions, EPA expects that the final rule will reduce emissions of toluene and xylene, two highly reactive toxic and volatile compounds. Toluene and xylene are hazardous air pollutants that manufacturers have historically used extensively in some aerosol coating formulations. However, both of these compounds are also highly reactive VOC. Therefore, it will be difficult for regulated entities to continue to use these compounds in significant concentrations and still meet the reactivity limits in the final rule. EPA maintains that a regulation based upon VOC reactivity, rather than VOC mass, will provide a significant incentive for regulated entities to cease or reduce use of toluene and xylene in their products.

Due to the reduction in equivalent VOC emissions and ozone formation and the anticipated reduction in hazardous air pollutant emissions, we believe the rule will improve human health and the environment.

2. Water and Solid Waste Impacts

There are no adverse solid waste impacts anticipated from the compliance with this rule. Companies can continue to sell and distribute coatings that do not meet the applicable limits after the compliance date, as long as those coatings were manufactured before the compliance date. Therefore, the industry does not have to dispose of aerosol cans containing noncompliant product, which would result in an increase in solid waste. It is possible that the rule will actually result in a reduction in solid waste, as more concentrated higher solids coatings may be used as an option for meeting the

regulatory limits. This will result in fewer containers requiring disposal when the same volume of solids is applied by product users.

There are no anticipated adverse water impacts from this rulemaking.

B. Energy Impacts

There are no adverse energy impacts anticipated from compliance with this rule. EPA expects that regulated entities will comply through product reformulation, which will not significantly alter energy impacts. The rule does not include add-on controls or other measures that would add to energy usage or other impacts.

C. Cost and Economic Impacts

There are four types of facilities that will be impacted by the final rule. These include the aerosol coating manufacturers, aerosol coating processors, and aerosol coating wholesale distributors, and importers of aerosol coatings. For some products, the manufacturer is also the filler and distributor, while for other products the manufacturing process, the filling process, and the distribution may be done by three separate companies. The primary focus of our cost and economic analysis is the aerosol coating manufacturers as we anticipate that the costs to the fillers, distributors, or importers will be minimal.

For the aerosol coating manufacturer, we evaluated three components in determining the total cost of the final rule. These three components include the cost of the raw materials that the manufacturer will use to formulate coatings that comply with the regulatory limits, the cost of research and development efforts that will be necessary to develop compliant formulations, and the cost of the recordkeeping and reporting requirements associated with the rule. These costs are explained in more detail in the proposed rule.[29] The only change to this rule since proposal that could impact the cost analysis from the proposed rule is the addition of triennial reporting, as discussed elsewhere. However, the estimated increase in burden from this increased reporting did not affect the average reporting and recordkeeping burden on a per can basis. Therefore, there was no change in the economic assessment.

If all of the cans of aerosol coating product subject to the rule required reformulation, the total nationwide cost of the final rule would be $20,360,521. However, we know that significant progress has already been made in reformulating aerosol coatings to meet the promulgated limits. Even before CARB's regulation became effective, its survey data showed that for 10 coating categories, 100 percent of the coatings were complying with the limits in 1997. For the remaining categories, all but two had complying market shares greater than 20 percent in 1997. With CARB's 2002 reactivity-based regulation in place, EPA anticipates that the number of coatings already meeting the limits has increased significantly.

[29] ''National Volatile Organic Compound Emission Standards for Aerosol Coatings: Proposed Rule'' 72 FR 38951 (July 16, 2007).

V. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), this action is a ''significant regulatory action'' because it raises novel legal or policy issues. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under EO 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this final rule have been submitted for approval to the OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by EPA has been assigned EPA ICR number 2266.02.

The information collection requirements are based on recordkeeping and reporting requirements. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 and section 183(e). All information submitted to EPA for which a claim of confidentiality is made is safeguarded according to EPA policies set forth in 40 CFR part 2, subpart B, as appropriate. The content of the reports required by this rule will not be eligible for treatment as confidential business information.

The promulgated standards would require regulated entities to submit an initial notification and other reports as outlined in section II.F.

We estimate that about 62 regulated entities are subject to the promulgated standards. New and existing regulated entities would have no capital costs associated with the information collection requirements in the promulgated standards.

The estimated recordkeeping and reporting burden in the third year after the effective date of the promulgated rule is estimated to be 15,818 labor hours at a cost of $1.0 million. This estimate includes the cost of reporting, including reading instructions, information gathering, preparation of initial and supplemental reports, triennial reporting of formulation data, and variance or compliance extension applications. Recordkeeping cost estimates include reading instructions, planning activities, calculation of reactivity, and maintenance of batch information. The average hours and cost per regulated entity in the third year would be 197 hours and $16,400. About 62 facilities would respond per year.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose, or provide information to or for a Federal Agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or

special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this regulatory action, I certify that this action will not have a significant economic impact on a substantial number of small entities. The small entities directly regulated by this final rule are manufacturers, wholesale distributors, and importers of aerosol coating products. We have determined that up to 40 out of a total of 60 entities (or 67%) could experience a cost-to-sales ratio increase of up to 1.42 percent. This ratio does not include revenues from other products that small regulated entities may sell. In addition, significant progress has already been made in reformulating aerosol coatings to meet previously promulgated CARB emission limits. Both of these factors would significantly reduce the cost-to-sales ratio. Consequently it is very unlikely that the cost-to-sales ratio for any small entity would exceed 1 percent. Thus, a significant impact is not expected for a substantial number of small entities.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA has made efforts to reduce the potential impact of the regulation. These efforts include active participation in National Small Business Environmental Assistance Program (SBEAP) meetings, and in follow-up meetings with SBEAP States in Region 5. As a result, several States provided information to small businesses regarding the rule. The final rule includes several provisions designed to minimize the potential adverse impacts on small businesses. They include a small quantity manufacturer exemption, a compliance extension for entities that have not previously developed CARB-compliant aerosol coatings formulations, and a variance provision.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this regulatory action does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, or tribal governments, in the aggregate, or the private sector in any one year. Thus, this action is not subject to the requirements of sections 202 and 205 of the UMRA. In addition, we have determined that this regulatory action contains no regulatory requirements that might significantly or uniquely affect small governments because they contain no regulatory requirements that apply to such governments or impose obligations upon them. Therefore, this action is not subject to the requirements of section 203 of UMRA.

E. Executive Order 13132: Federalism

Executive Order (EO) 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the EO to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

The regulatory action does not have federalism implications. The action does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in EO 13132. The CAA establishes the relationship between the Federal Government and the States, and this action does not impact that relationship. Thus, EO 13132 does not apply to this regulatory action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order (EO) 13175, entitled ''Consultation and Coordination with Indian Tribal Governments'' (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by Tribal officials in the development of regulatory policies that have Tribal implications.'' ''Policies that have tribal implications'' is defined in the EO to include regulations that have ''substantial direct effects on one or more Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.''

This final action does not have Tribal implications as defined by EO 13175. The final regulatory action does not have a substantial direct effect on one or more Indian tribes, in that this action imposes no regulatory burdens on Tribes. Furthermore, the action does not affect the relationship or distribution of power and responsibilities between the Federal Government and Indian tribes. The CAA and the Tribal Authority Rule (TAR) establish the relationship of the Federal Government and Tribes in implementing the CAA. Because the rule does not have Tribal implications, EO 13175 does not apply.

G. Executive Order 13045: Protection of Children from Environmental Health and Safety Risks

Executive Order (EO) 13045, ''Protection of Children from Environmental Health and Safety Risks'' (62 FR 19885, April 23, 1997) applies to any rule that (1) is determined to be ''economically significant'' as defined under EO 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, section 5–501 of the EO directs the EPA to evaluate the environmental health or

safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the EPA.

This regulatory action is not subject to EO 13045 because it is not an economically significant regulatory action as defined by EO 12866. In addition, EPA interprets EO 13045 as applying only to those regulatory actions that are based on health and safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulations. This regulatory action is not subject to EO 13045 because it does not include regulatory requirements based on health or safety risks.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This rule is not a ''significant energy action'' as defined in Executive Order (EO) 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355 (May 22, 2001)) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Further, we have concluded that this rule is not likely to have any adverse energy effects.

I. National Technology Transfer and Advancement Act

As noted in the proposed rule, section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 104–113, Section 12(d), 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. The VCS are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the EPA does not use available and applicable VCS.

This final rule involves technical standards. EPA cites the following standards in this rule: California Air Resources Board Method 310—Determination of VOC in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products; EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A), in conjunction with American Society of Testing and Materials (ASTM) Method D3063–94 or D3074–94 for analysis of the propellant portion of the coating; South Coast Air Quality Management District (SCAQMD) Method 318–95, Determination of Weight Percent Elemental Metal in Coatings by X-ray Diffraction, July, 1996, for metal content; and ASTM D523–89 (Reapproved 1999), Standard Test Method for Specular Gloss for specular gloss of flat and nonflat coatings.

EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) also is a compilation of voluntary consensus standards. The following are incorporated by reference in EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A): ASTM D1979–91, ASTM D3432–89, ASTM D4457–85, ASTM D4747–87, ASTM D4827–93, and ASTM PS9–94.

Consistent with the NTTAA, EPA conducted searches to identify voluntary consensus standards in addition to these methods. No applicable voluntary consensus standards were identified.

For the methods required by the rule, a source may apply to EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures under §§ 63.7(f) and 63.8(f) of subpart A of the General Provisions.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income populations. Further, it establishes national emission standards for VOC in aerosol coatings.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. The EPA will submit a report containing the final rule amendment and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this final rule amendment in the **Federal Register**. The final rule amendment is not a ''major rule'' as defined by 5 U.S.C. 804(2). This final rule is effective on March 24, 2008.

List of Subjects

40 CFR Part 51

Environmental protection, Administrative practice and procedure, Air pollution control, Carbon monoxide, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compound, Consumer products, Aerosol products, Aerosol coatings, Consumer and commercial products.

40 CFR Part 59

Environmental protection, Administrative practice and procedure, Air pollution control, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: November 15, 2007.

Stephen L. Johnson,

Administrator.

■ For the reasons set out in the preamble, parts 51 and 59 of title 40 of the Code of Federal Regulations are amended as follows:

PART 51—[AMENDED]

■ 1. The authority citation for part 51 continues to read as follows:

Authority: 23 U.S.C. 101; 42 U.S.C. 7401–7671q.

■ 2. Section 51.100 is amended by adding paragraph (s)(7) to read as follows:

§ 51.100 Definitions.

* * * * *

(s) * * *

(7) For the purposes of determining compliance with EPA's aerosol coatings reactivity based regulation (as described in 40 CFR part 59—National Volatile Organic Compound Emission Standards for Consumer and Commercial Products) any organic compound in the volatile portion of an aerosol coating is counted towards the product's reactivity-based limit, as provided in part 59, subpart E. Therefore, the compounds that are used in aerosol coating products and that are identified in paragraph (s) of this section as negligibly reactive and excluded from EPA's definition of VOC are to be counted towards a product's reactivity limit for the purposes of determining compliance with EPA's aerosol coatings reactivity-based national regulation, as provided in part 59, subpart E.

* * * * *

PART 59—[AMENDED]

■ 3. The authority citation for part 59 continues to read as follows:

Authority: 42 U.S.C. 7414 and 7511b(e).

■ 4. Subpart E is added to read as follows:

Subpart E—National Volatile Organic Compound Emission Standards for Aerosol Coatings

Sec.

Subpart E—National Volatile Organic Compound Emission Standards for Aerosol Coatings

§ 59.500 What is the purpose of this subpart?

This subpart establishes the product-weighted reactivity (PWR) limits regulated entities must meet in order to comply with the national rule for volatile organic compounds (VOC) emitted from aerosol coatings. This subpart also establishes labeling, recordkeeping, and reporting requirements for regulated entities.

§ 59.501 Am I subject to this subpart?

(a) The regulated entities for an aerosol coating product are the manufacturer or importer of an aerosol coating product and a distributor of an aerosol coating product if named on the label. Distributors whose names do not appear on the label for the product are not regulated entities. Distributors include retailers whose names appear on the label for the product. If your name appears on the label, you are a regulated entity.

(b) Except as provided in paragraph (e) of this section, the responsibilities of each regulated entity are detailed in paragraphs (b)(1) through (b)(4) of this section.

(1) If you are a manufacturer or importer, you are the regulated entity responsible for ensuring that all aerosol coatings manufactured or imported by you meet the PWR limits presented in § 59.504, even if your name is not on the label.

(2) If you are a distributor named on the label, you are the regulated entity responsible for compliance with all sections of this subpart except for the limits presented in § 59.504. If you are a distributor that has specified formulations to be used by a manufacturer, then you are responsible for compliance with all sections of this subpart.

(3) If there is no distributor named on the label, then the manufacturer or importer is the regulated entity responsible for compliance with all sections of this subpart.

(4) If you are a manufacturer or importer, you can choose to certify that you will provide any or all of the recordkeeping and reporting requirements of §§ 59.510 and 59.511 by following the procedures of § 59.511(g) and (h).

(c) Except as provided in paragraph (e) of this section, the provisions of this subpart apply to aerosol coatings manufactured on or after January 1, 2009, for sale or distribution in the United States. Aerosol coatings that are registered under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136–136y) (FIFRA). For FIFRA registered aerosol coatings, the provisions of this subpart apply to aerosol coatings manufactured on or after January 1, 2010, for sale or distribution in the United States.

(d) You are not a regulated entity under this subpart for the aerosol coatings products that you manufacture (in or outside of the United States) that are exclusively for sale outside the United States.

(e) If you meet the definition of small quantity manufacturer for a given year, the products you manufacture in that year are not subject to the PWR limits presented in § 59.504 or the labeling requirements of § 59.507. To qualify for this exemption, small aerosol coating manufacturers must comply with the applicable recordkeeping and reporting requirements in §§ 59.510 and 59.511.

(f) If you are a person who manufactures or processes aerosol coatings outside of the United States, you may qualify for the small quantity manufacturer exemption in paragraph (e) of this section if you meet the requirements of paragraphs (f)(1) through (f)(3) of this section.

(1) The total VOC by mass included in all aerosol coatings you manufacture, at all facilities, in a given calendar year, in the aggregate, is less than 7,500 kilograms.

(2) You comply with the recordkeeping and reporting requirements in §§ 59.510 and 59.511.

(3) You commit to and comply with the requirements of paragraphs (f)(3)(i) through (f)(3)(vii) of this section.

(i) You must provide an initial notification no later than 90 days before the compliance date, or at least 90 days before you start manufacturing aerosol coating products that are sold in the United States. This initial notification must state that you are a foreign manufacturer that is intending to qualify for the small quantity manufacturer exemption in paragraph (e) of this section, provide all of the information specified in § 59.511(b), and provide all the information in paragraphs (f)(3)(i)(A) and (f)(3)(i)(B) of this section.

(A) The name, address, telephone number, and e-mail address of an agent located in the United States who will serve as your point of contact for communications with EPA.

(B) The address of each of your facilities that is manufacturing aerosol coatings for sale in the United States.

(ii) You must notify the Administrator of any changes in the information provided in your initial notification within 30 days following the change.

(iii) The agent identified above must maintain a copy of the compliance records specified in § 59.510(b). Those records must be kept by the agent such that the agent will be able to provide the written report which must be submitted upon 60 days notice under § 59.511(d) and able to make those records available for inspection and review under § 59.511(e).

(iv) You must give any EPA inspector or auditor full, complete, and immediate access to your facilities and records to conduct inspections and audits of your manufacturing facilities.

(v) You must agree that United States substantive and procedural law shall apply to any civil or criminal enforcement action against you under this subpart, and that the forum for any civil or criminal enforcement action under this subpart shall be governed by the CAA, including the EPA administrative forum where allowed under the CAA.

(vi) Any person certifying any notification, report, or other communication from you to EPA must state in the certification that United States substantive and procedural law shall apply to any civil or criminal enforcement action against him or her under this subpart, and that the forum for any civil or criminal enforcement action under this section shall be governed by the CAA, including the EPA administrative forum where allowed under the CAA.

(vii) All reports and other communications with EPA must be in English. To the extent that you provide any documents as part of any report or other communication with EPA, an English language translation of that document must be provided with the report or communication.

§ 59.502 When do I have to comply with this subpart?

(a) Except as provided in § 59.509 and paragraphs (b) and (c) of this section, you must be in compliance with all provisions of this subpart by January 1, 2009.

(b) The Administrator will consider issuance of a special compliance extension that extends the date of compliance until January 1, 2011, to regulated entities that have never manufactured, imported, or distributed aerosol coatings for sale or distribution in California that are in compliance with California's Regulation for Reducing Ozone Formed From Aerosol Coating Product Emissions, Title 17, California Code of Regulations, sections 94520–94528. In order to be considered for an extension of the compliance date, you must submit a special compliance extension application to the EPA Administrator no later than 90 days before the compliance date or within 90 days before the date that you first manufacture aerosol coatings, whichever is later. This application must contain the information in paragraphs (b)(1) through (b)(5) of this section. If a regulated entity remains unable to comply with the limits of this rule by January 1, 2011, the regulated entity may seek a variance in accordance with § 59.509.

(1) Company name;

(2) A signed certification by a responsible company official that the regulated entity has not at any time manufactured, imported, or distributed for sale or distribution in California any product in any category listed in Table 1 of this subpart that complies with California's Regulation for Reducing Ozone Formed From Aerosol Coating Product Emissions, Title 17, California Code of Regulations, sections 94520–94528;

(3) A statement that the regulated entity will, to the extent possible within its reasonable control, take appropriate action to achieve compliance with this subpart by January 1, 2011;

(4) A list of the product categories in Table 1 of this subpart that the regulated entity manufactures, imports, or distributes; and,

(5) Name, title, address, telephone, e-mail address, and signature of the certifying company official.

(c) Except as provided in paragraph (b) of this section, the compliance date for aerosol coatings that are registered under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C 136–136y) (FIFRA) is January 1, 2010.

§ 59.503 What definitions apply to this subpart?

The following terms are defined for the purposes of this subpart only.

Administrator means the Administrator of the United States Environmental Protection Agency (EPA) or an authorized representative.

Aerosol Coating Product means a pressurized coating product containing pigments or resins that is dispensed by means of a propellant and is packaged in a disposable can for hand-held application, or for use in specialized equipment for ground traffic/marking applications. For the purpose of this regulation, applicable aerosol coatings categories are listed in Table 1 of this subpart.

Art Fixative or Sealant means a clear coating, 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.

ASTM means the American Society for Testing and Materials.

Autobody Primer means an automotive primer or primer surfacer coating designed and labeled exclusively to be applied to a vehicle body substrate for the purposes of corrosion resistance and building a repair area to a condition in which, after drying, it can be sanded to a smooth surface.

Automotive Bumper and Trim Product means a product, including adhesion promoters and chip sealants, designed and labeled exclusively to repair and refinish automotive bumpers and plastic trim parts.

Aviation Propeller Coating means a coating designed and labeled exclusively to provide abrasion resistance and corrosion protection for aircraft propellers.

Aviation or Marine Primer means a coating designed and labeled exclusively to meet federal specification TT–P–1757.

Clear Coating means a coating which is colorless, containing resins but no pigments except flatting agents, and is designed and labeled to form a transparent or translucent solid film.

Coating Solids means the nonvolatile portion of an aerosol coating product, consisting of the film-forming ingredients, including pigments and resins.

Commercial Application means the use of aerosol coating products in the production of goods, or the providing of services for profit, including touch-up and repair.

Corrosion Resistant Brass, Bronze, or Copper Coating means a clear coating designed and labeled exclusively to prevent tarnish and corrosion of uncoated brass, bronze, or copper metal surfaces.

Distributor means any person who purchases or is supplied aerosol coating product for the purposes of resale or distribution in commerce. Retailers who fall within this definition are distributors. Importers are not distributors.

Enamel means a coating which cures by chemical cross-linking of its base resin and is not resoluble in its original solvent.

Engine Paint means a coating designed and labeled exclusively to coat engines and their components.

Exact Match Finish, Engine Paint means a coating which meets all of the following criteria:

(1) The product is designed and labeled exclusively to exactly match the color of an original, factory-applied engine paint;

(2) The product is labeled with the manufacturer's name for which they were formulated; and

(3) The product is labeled with one of the following:

(i) The original equipment manufacturer's (O.E.M.) color code number;

(ii) The color name; or

(iii) Other designation identifying the specific O.E.M. color to the purchaser.

Exact Match Finish, Automotive means a topcoat which meets all of the following criteria:

(1) The product is designed and labeled exclusively to exactly match the color of an original, factory-applied automotive coating during the touch-up of automobile finishes;

(2) The product is labeled with the manufacturer's name for which they were formulated; and

(3) The product is labeled with one of the following:

(i) The original equipment manufacturer's (O.E.M.) color code number;

(ii) The color name; or

(iii) Other designation identifying the specific O.E.M. color to the purchaser. Notwithstanding the foregoing, automotive clear coatings designed and labeled exclusively for use over automotive exact match finishes to replicate the original factory-applied finish shall be considered to be automotive exact match finishes.

Exact Match Finish, Industrial means a coating which meets all of the following criteria:

(1) The product is designed and labeled exclusively to exactly match the color of an original, factory-applied industrial coating during the touch-up of manufactured products;

(2) The product is labeled with the manufacturer's name for which they were formulated; and

(3) The product is labeled with one of the following:

(i) O.E.M. color code number;

(ii) The color name; or

(iii) Other designation identifying the specific O.E.M. color to the purchaser.

Flat Paint Products means a coating 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.

Flatting Agent means a compound added to a coating to reduce the gloss of the coating without adding color to the coating.

Floral Spray means a coating 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.

Formulation Data, unless otherwise specified, means the recipe used to formulate or manufacture a coating product in terms of the weight fraction (g compound/g product) of each individual VOC in the product.

Fluorescent Coating means a coating labeled as such, which converts absorbed incident light energy into emitted light of a different hue.

Glass Coating means a coating 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.

Ground Traffic/Marking Coating means a coating designed and labeled exclusively to be applied to dirt, gravel, grass, concrete, asphalt, warehouse floors, or parking lots. Such coatings must be in a container equipped with a valve and spray head designed to direct the spray toward the surface when the can is held in an inverted vertical position.

High Temperature Coating means a coating, excluding engine paint, which is designed and labeled exclusively for use on substrates which will, in normal use, be subjected to temperatures in excess of 400 °F.

Hobby/Model/Craft Coating means a coating which is designed and labeled exclusively for hobby applications and is sold in aerosol containers of 6 ounces by weight or less.

Importer means any person who brings an aerosol coating product that was manufactured, filled, or packaged at a location outside of the United States into the United States for sale or distribution in the United States.

Ingredient means a component of an aerosol coating product.

Impurity means an individual chemical compound present in a raw material which is incorporated in the final aerosol coatings formulation, if the compound is present in amounts below the following in the raw material:

(1) For individual compounds that are carcinogens each compound must be present in an amount less than 0.1 percent by weight;

(2) For all other compounds present in a raw material, a compound must be present in an amount less than 1 percent by weight.

Lacquer means a thermoplastic film-forming material dissolved in organic solvent, which dries primarily by solvent evaporation, and is resoluble in its original solvent.

Manufacturer means any person who manufactures or processes an aerosol coating product for sale or distribution within the United States. Manufacturers include:

(1) Processors who blend and mix aerosol coatings;

(2) Contract fillers who develop formulas and package these formulations under a distributor's name; and

(3) Contract fillers who manufacture products using formulations provided by a distributor.

Marine Spar Varnish means a coating designed and labeled exclusively to provide a protective sealant for marine wood products.

Metallic Coating means a topcoat which contains at least 0.5 percent by weight elemental 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.''

Multi-Component Kit means an aerosol spray paint system which requires the application of more than one component (e.g. foundation coat and topcoat), where both components are sold together in one package.

Nonflat Paint Product means a coating which, when fully dry, registers a specular gloss greater than 15 on an 85° gloss meter or greater than five on a 60° gloss meter.

Ozone means a colorless gas with a pungent odor, having the molecular form O_3.

Person means an individual, corporation, partnership, association, state, any agency, department, or instrumentality of the United States, and any officer, agent, or employee thereof.

Photograph Coating means a coating 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.

Pleasure Craft means privately owned vessels used for noncommercial purposes.

Pleasure Craft Finish Primer/Surfacer/Undercoater means a coating designed and labeled exclusively to be applied prior to the application of a pleasure craft topcoat for the purpose of corrosion resistance and adhesion of the topcoat, and which promotes a uniform surface by filling in surface imperfections.

Pleasure Craft Topcoat means a coating 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. This category does not include clear coatings.

Polyolefin Adhesion Promoter means a coating designed and labeled exclusively to be applied to a polyolefin or polyolefin copolymer surface of automotive body parts, bumpers, or trim parts to provide a bond between the surface and subsequent coats.

Primer means a coating labeled as such, which is designed to be applied to a surface to provide a bond between that surface and subsequent coats.

Product-Weighted Reactivity (PWR) Limit means the maximum allowed ''product-weighted reactivity,'' as calculated in § 59.505, of an aerosol coating product that is subject to the limits specified in § 59.504 for a specific category, expressed as grams of ozone per gram (g O_3/g of product).

Propellant means a liquefied or compressed gas that is used in whole or in part, such as a co-solvent, to expel a liquid or any other material from the same self-pressurized container or from a separate container.

Reactivity Factor (RF) is a measure of the change in mass of ozone formed by adding a gram of a VOC to the ambient atmosphere, expressed to hundredths of a gram (g O_3/g VOC). The RF values for individual compounds and hydrocarbon solvent mixtures are specified in Tables 2A, 2B, and 2C of this subpart.

Retailer means any person who sells, supplies, or offers aerosol coating products for sale directly to consumers. Retailers who fall within the definition of ''distributor'' in this section are distributors.

Retail Outlet means any establishment where consumer products are sold, supplied, or offered for sale, directly to consumers.

Shellac Sealer means a clear or pigmented coating 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.

Slip-Resistant Coating means a coating designed and labeled exclusively as such, which is formulated with synthetic grit and used as a safety coating.

Small quantity manufacturer means a manufacturer whose total VOC by mass included in all aerosol coatings manufactured at all facilities in a given calendar year, in the aggregate, is less than 7,500 kilograms.

Spatter Coating/Multicolor Coating means a coating labeled exclusively as such wherein spots, globules, or spatters of contrasting colors appear on or within the surface of a contrasting or similar background.

Stain means a coating which is designed and labeled to change the color of a surface but not conceal the surface.

United States means the United States of America, including the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

Vinyl/Fabric/Leather/Polycarbonate Coating means a coating designed and labeled exclusively to coat vinyl, fabric, leather, or polycarbonate substrates or to coat flexible substrates including rubber or thermoplastic substrates.

Volatile Organic Compound (VOC) means any organic compound as defined in § 51.100(s) of this chapter. As provided in 40 CFR 51.100(s)(7), exemptions from the definition of VOC in 40 CFR 51.100(s) for certain compounds that are used in aerosol coatings are inapplicable for purposes of this subpart.

Webbing/Veiling Coating means a coating designed and labeled exclusively to provide a stranded to spider webbed appearance when applied.

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).

Weld-Through Primer means a coating designed and labeled exclusively to provide a bridging or conducting effect for corrosion protection following welding.

Wood Stain means a coating which is formulated to change the color of a wood surface but not conceal the surface.

Wood Touch-Up/Repair/Restoration means a coating designed and labeled exclusively to provide an exact color or sheen match on finished wood products.

Working Day means any day from Monday through Friday, inclusive, except for days that are Federal holidays.

§ 59.504 What limits must I meet?

(a) Except as provided in § 59.509, each aerosol coating product you manufacture, distribute or import for sale or use in the United States must meet the PWR limits presented in Table 1 of this subpart. These limits apply to the final aerosol coating, including the propellant. The PWR limits specified in Table 1 of this subpart are also applicable to any aerosol coating product that is assembled by adding bulk coating to aerosol containers of propellant.

(b) If a product can be included in both a general coating category and a specialty coating category and the product meets all of the criteria of the specialty coating category, then the specialty coating limit will apply instead of the general coating limit, unless the product is a high temperature coating. High-temperature coatings that contain at least 0.5 percent by weight of an elemental metallic pigment in the formulation, including propellant, are subject to the limit specified for metallic coatings.

(c) Except as provided in paragraph (b) of this section, if anywhere on the container of any aerosol coating product subject to the limits in Table 1 of this subpart, or on any sticker or label affixed to such product, or in any sales or advertising literature, the manufacturer, importer or distributor of the product makes any representation 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 will apply.

§ 59.505 How do I demonstrate compliance with the reactivity limits?

(a) To demonstrate compliance with the PWR limits presented in Table 1 of this subpart, you must calculate the PWR for each coating as described in paragraphs (a)(1) through (2) of this section:

(1) Calculate the weighted reactivity factor (WRF) for each propellant and coating component using Equation 1:

$$WRF_i = RF_i \times WF_i \qquad \text{Equation 1}$$

Where:

WRF_i = weighted reactivity factor of component i, g O_3/g component i.

RF_i = reactivity factor of component i, g O_3/g component i, from Table 2A, 2B, or 2C.

WF_i = weight fraction of component i in the product,

(2) Calculate the PWR of each product using Equation 2:

$$PWR_p = (WRF)_1 + (WRF)_2 + ... + (WRF)_n \qquad \text{Equation 2}$$

Where:

PWR_p = PWR for product P, g O_3/g product.

WRF_1 = weighted reactivity factor for component 1, g O_3/g component.

WRF_2 = weighted reactivity factor for component 2, g O_3/g component.

WRF_n = weighted reactivity factor for component n, g O_3/g component.

(b) In calculating the PWR, you must follow the guidelines in paragraphs (b)(1) through (b)(4) of this section.

(1) Any ingredient which does not contain carbon is assigned a RF value of 0.

(2) Any aerosol coating solid, including but not limited to resins, pigments, fillers, plasticizers, and extenders is assigned a RF of 0. These items do not have to be identified individually in the calculation.

(3) All individual compounds present in the coating in an amount equal to or exceeding 0.1 percent will be considered ingredients regardless of whether or not the ingredient is reported to the manufacturer.

(4) All individual compounds present in the coating in an amount less than 0.1 percent will be assigned an RF value of 0.

(5) Any component that is a VOC but is not listed in Table 2A, 2B, or 2C of this subpart is assigned an RF value as detailed in paragraph (e) of this section.

(c) You may use either formulation data (including information for both the liquid and propellant phases), California Air Resources Board Method 310—Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products (May 5, 2005) (incorporated by reference in 59.515), or EPA's Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A), to calculate the PWR. However, if there are inconsistencies between the formulation data and the California Air Resources Board Method 310 (May 5, 2005) (incorporated by reference in 59.515), or EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) results, the California Air Resources Board Method 310 (May 5, 2005) (incorporated by reference in 59.515), or EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) results will govern.

(d) If you manufacture a coating containing either an aromatic or aliphatic hydrocarbon solvent mixture, you must use the appropriate RF for that mixture provided in Table 2B or 2C of this subpart when calculating the PWR using formulation data. However, when calculating the PWR for a coating containing these mixtures using data from California Air Resources Board Method 310 (May 5, 2005) (incorporated by reference in 59.515), or EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A), you must identify the individual compounds that are present in the solvent mixture and use the weight fraction of those individual compounds and their RF from Table 2A of this subpart in the calculation.

(e) If a VOC is used in a product but not listed in Table 2A of this subpart, the Reactivity Factor (RF) is assigned according to paragraphs (e)(1), (e)(2), (e)(3) or (e)(4) of this section.

(1) If the VOC is not listed in Table 2A of this subpart, but has an RF greater than 0.3, the regulated entity may petition EPA to add the VOC to Table 2A, as described in § 59.511(j). Based on these petitions, EPA will periodically update the appropriate table. Once an RF for a VOC is listed on the appropriate table, that RF will be used for that VOC for the purposes of this rule. As provided in § 59.511(j), any petitions submitted to EPA on or before June 1, 2008, will be considered, and if appropriate, incorporated into Table 2A on or before January 1, 2009.

(2) If the VOC is used in a product but not listed in Table 2A of this regulation, and has an RF less than or equal to 0.3, and will be used at a level greater than or equal to 7.3 weight percent (g of compound/g product) in any of the regulated entity's formulations, the regulated entity may petition EPA as described in § 59.511(j). Based on these petitions, EPA will periodically update the appropriate table. Once an RF for a VOC is listed on the appropriate table, that RF will be used for that VOC for the purposes of this rule. As provided in § 59.511(j), any petition submitted to EPA on or before June 1, 2008 will be considered, and if appropriate, incorporated into Table 2A on or before January 1, 2009.

(3) If a compound has an RF less than or equal to 0.3, and will not be used at a level greater than or equal to 7.3 weight percent (g of compound/g product) in any of the regulated entity's formulations, the RF to be used in all calculations by that entity for this subpart is 0.

(4) Except as provided in paragraph (e)(1), (e)(2) and (e)(3) of this section, if a VOC is not listed in Table 2A of this subpart, it is assigned a default RF factor of 22.04 g O3/g VOC. As described in § 59.511(j), regulated entities may petition the Administrator to add a compound or mixture to Table 2A, 2B, or 2C of this subpart.

(f) In calculating the PWR value for a coating containing an aromatic hydrocarbon solvent with a boiling range different from the ranges specified in Table 2C of this subpart, you must assign an RF as described in paragraphs (f)(1) and (f)(2) of this section:

(1) If the solvent boiling point is lower than or equal to 420 degrees F, then you must use the RF in Table 2C of this subpart specified for bin 23;

(2) If the solvent boiling point is higher than 420 degrees F, then you must use the RF specified in Table 2C of this subpart for bin 24.

(g) For purposes of compliance with the PWR limits, all compounds listed in Tables 2A, 2B, or 2C that are used in the aerosol coating products must be included in the calculation. This includes compounds that may otherwise be exempted from the definition of VOC in § 59.100(s).

§ 59.506 How do I demonstrate compliance if I manufacture multi-component kits?

(a) If you manufacture multi-component kits as defined in § 59.503, then the Kit PWR must not exceed the Total Reactivity Limit.

(b) You must calculate the Kit PWR and the Total Reactivity Limit as follows:

(1) KIT PWR = $(PWR_{(1)} \times W_1) + (PWR_{(2)} \times W_2) + ... + (PWR_{(n)} \times W_n)$

(2) Total Reactivity Limit = $(RL_1 \times W_1) + (RL_2 \times W_2) + ... + (RL_n \times W_n)$.

(3) Kit PWR ≤ Total Reactivity Limit.

Where:

W = the weight of the product contents (excluding container).
RL = the PWR Limit specified in Table 1 of this subpart.
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.

§ 59.507 What are the labeling requirements for aerosol coatings?

(a) The labels of all aerosol products manufactured on and after the applicable compliance date listed in § 59.502 must contain the information listed in paragraphs (a)(1) through (4) of this section.

(1) The aerosol coating category code for the coating, based on the category definitions in § 59.503. This code can be the default category code shown in Table 1 of this subpart or a company-specific code, if that code is explained as required by § 59.511(a);

(2) The applicable PWR limit for the product specified in Table 1 of this subpart;

(3) The day, month, and year on which the product was manufactured, or a code indicating such date;

(4) The name and a contact address for the manufacturer, distributor, or importer that is the regulated entity under this subpart.

(b) The label on the product must be displayed in such a manner that it is readily observable without removing or disassembling any portion of the product container or packaging. The information may be displayed on the bottom of the container as long as it is clearly legible without removing any product packaging.

§ 59.508 What test methods must I use?

(a) Except as provided in § 59.505(c), you must use the procedures in California Air Resource Board Method 310—Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products (May 5, 2005) (incorporated by reference in § 59.515) or EPA's Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) to determine the speciated ingredients and weight percentage of each ingredient of each aerosol coating product. EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A) must be used in conjunction with ASTM Method D3063–94 or D3074–94 for analysis of the propellant portion of the coating. Those choosing to use California Air Resources Board Method 310 (May 5, 2005) (incorporated by reference in § 59.515) must follow the procedures specified in section 5.0 of that method with the exception of section 5.3.1, which requires the analysis of the VOC content of the coating. For the purposes of this subpart, you are not required to determine the VOC content of the aerosol coating. For both California Air Resources Board Method 310 (May 5, 2005) (incorporated by reference in § 59.515) and EPA Method 311—Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph (40 CFR part 63, appendix A), you must have a listing of the VOC ingredients in the coating before conducting the analysis.

(b) To determine the metal content of metallic aerosol coating products, you must use South Coast Air Quality Management District (SCAQMD) Method 318–95, Determination of Weight Percent Elemental Metal in Coatings by X-ray Diffraction, July, 1996, in 40 CFR part 59 (incorporated by reference in § 59.515).

To determine the specular gloss of flat and nonflat coatings you must use ASTM Method D523–89 (Reapproved 1999), Standard Test Method for Specular Gloss, in 40 CFR part 59 (incorporated by reference in § 59.515).

§ 59.509 Can I get a variance?

(a) Any regulated entity that cannot comply with the requirements of this subpart because of circumstances beyond its reasonable control may apply in writing to the Administrator for a temporary variance. The variance application must include the information specified in paragraphs (a)(1) through (a)(5) of this section.

(1) The specific products for which the variance is sought.

(2) The specific provisions of the subpart for which the variance is sought.

(3) The specific grounds upon which the variance is sought.

(4) The proposed date(s) by which the regulated entity will achieve compliance with the provisions of this subpart. This date must be no later than 3 years after the issuance of a variance.

(5) A compliance plan detailing the method(s) by which the regulated entity will achieve compliance with the provisions of this subpart.

(b) Within 30 days of receipt of the original application and within 30 days of receipt of any supplementary information that is submitted, the Administrator will send a regulated entity written notification of whether the application contains sufficient information to make a determination. If an application is incomplete, the Administrator will specify the information needed to complete the application, and provide the opportunity for the regulated entity to submit written supplementary information or arguments to the Administrator to enable further action on the application. The regulated entity must submit this information to the Administrator within 30 days of being notified that its application is incomplete.

(c) Within 60 days of receipt of sufficient information to evaluate the application, the Administrator will send a regulated entity written notification of approval or disapproval of a variance application. This 60-day period will begin after the regulated entity has been sent written notification that its application is complete.

(d) The Administrator will issue a variance if the criteria specified in paragraphs (d)(1) and (d)(2) of this section are met to the satisfaction of the Administrator.

(1) Complying with the provisions of this subpart would not be technologically or economically feasible.

(2) The compliance plan proposed by the applicant can reasonably be implemented and will achieve compliance as expeditiously as possible.

(e) A variance must specify dates by which the regulated entity will achieve increments of progress towards compliance, and will specify a final compliance date by which the regulated entity will achieve compliance with this subpart.

(f) A variance will cease to be effective upon failure of the party to whom the variance was issued to comply with any term or condition of the variance.

§ 59.510 What records am I required to maintain?

(a) If you are the regulated entity identified in § 59.501(a) as being responsible for recordkeeping for a product, and no other person has certified that they will fulfill your recordkeeping responsibilities as provided in § 59.511(g), you must comply with paragraphs (a)(1) through (a)(5) of this section:

(1) All records must be maintained on and after the applicable compliance date listed in § 59.502.

(2) You are required to maintain records of the following at the location specified in § 59.511(b)(4) for each product subject to the PWR limits in Table 1 of this subpart: The product category, all product calculations, the PWR, and the weight fraction of all ingredients including: Water, total solids, each VOC, and any other compounds assigned a RF of zero as specified in § 59.505. Solids do not have to be listed individually in these records. If an individual VOC is present in an amount less than 0.1 percent by weight, then it does not need to be reported as an ingredient. An impurity that meets the definition provided in § 59.503 does not have to be reported as an ingredient. For each batch of each product subject to the PWR limits, you must maintain records of the date the batch was manufactured, the volume of the batch, the recipe used for formulating the batch, and the number of cans manufactured in each batch and each formulation.

(3) You must maintain a copy of each notification and report that you submit to comply with this subpart, the documentation supporting each notification, and a copy of the label for each product.

(4) If you claim the exemption under § 59.501(e), you must maintain a copy of the initial report and each annual report that you submit to EPA, and the documentation supporting such report.

(5) You must maintain all records required by this subpart for a minimum of 5 years. The records must be in a form suitable and readily available for inspection and review.

(b) By providing the written certification to the Administrator in accordance with § 59.511(g), the certifying manufacturer accepts responsibility for compliance with the recordkeeping requirements of this section with respect to any products covered by the written certification, as detailed in the written certification. Failure to maintain the required records may result in enforcement action by EPA against the certifying manufacturer in accordance with the enforcement provisions applicable to violation of these provisions by regulated entities. If the certifying manufacturer revokes its certification, as allowed by § 59.511(h), the regulated entity must assume responsibility for maintaining all records required by this section.

§ 59.511 What notifications and reports must I submit?

(a) If you are the regulated entity identified in § 59.501(a) and (b) as being responsible for notifications and reporting for a product, and no other person has certified that they will fulfill your notification and reporting responsibilities as provided in paragraph (g) of this section, you are responsible for all notifications and reports included in this section. If no distributor is named on the label, the manufacturer or importer of the aerosol coating is responsible for all requirements of this section, even if not listed on the label.

(b) You must submit an initial notification no later than 90 days before the compliance date, or at least 90 days before the date that you first manufacture, distribute, or import aerosol coatings, whichever is later. The initial notification must include the information in paragraphs (b)(1) through (b)(11) of this section.

(1) Company name;

(2) Name, title, address, telephone number, e-mail address and signature of certifying company official;

(3) A list of the product categories from Table 1 of this subpart that you manufacture, import, or distribute;

(4) The street address of each of your facilities in the United States that is manufacturing, packaging, or importing aerosol coatings that are subject to the provisions of this subpart, and the street address where compliance records are maintained for each site, if different;

(5) A description of date coding systems, clearly explaining how the date of manufacture is marked on each sales unit;

(6) An explanation of the product category codes that will be used on all required labels, or a statement that the default category codes in Table 1 of this subpart will be used;

(7) For each product category, an explanation of how the manufacturer, distributor, or importer will define a batch for the purpose of the recordkeeping requirements;

(8) A list of any compounds or mixtures that will be used in aerosol coatings that are not included in Table 2A, 2B, or 2C of this subpart;

(9) For each product category, VOC formulation data for each formulation that you anticipate manufacturing, importing, or distributing for calendar year 2009 or for the first year that includes your compliance date, if different than 2009. If a regulated entity can certify that the reporting is being completed by another regulated entity for any product, no second report is required. The formulation data must include the weight fraction (g compound/g product) for each VOC ingredient used in the product in an amount greater than or equal to 0.1 percent. The formulation data must also include the information in either paragraph (b)(9)(i) or (b)(9)(ii) of this section for each VOC ingredient reported.

(i) For compounds listed in Table 2A of this regulation, the chemical name, CAS number, and the applicable reactivity factor; or

(ii) For hydrocarbon solvent mixtures listed in either 2B or 2C or this subpart, the trade name, solvent mixture manufacturer, bin number, and the applicable reactivity factor.

(10) For each product formulation, a list of the unique product codes by Universal Product Code (UPC), or other unique identifier; and

(11) A statement certifying that all products manufactured by the company that are subject to the limits in Table 1 of this subpart will be in compliance with those limits.

(c) If you change any information included in the initial notification required by paragraph (b) of this section, including the list of aerosol categories, contact information, records location, the category or date coding system, or the list required under paragraph (b)(8) of this section, you must notify the Administrator of such changes within 30 days following the change. You are also required to notify the Administrator within 30 days of the date that you begin using an organic compound in any of your aerosol coating products if that compound has an RF less than or equal to 0.3, and is used at a level greater than or equal to 7.3 weight percent (g of compound/g product) in any of your formulations. You are not required to notify the Administrator within 30 days of changes to the information provided as required by paragraph (b)(9) of this section. Changes in formulation are to be reported in the triennial reporting required by paragraph (i) of this section.

(d) Upon 60 days written notice, you must submit to the Administrator a written report with all the information in paragraphs (d)(1) through (d)(5) of this section for each product you manufacture, distribute, or import under your name or another company's name.

(1) The brand name of the product;

(2) A copy of the product label;

(3) The owner of the trademark or brand names;

(4) The product category as defined in § 59.503;

(5) For each product, formulation data for each formulation that manufactured, imported, or distributed in the

requested time period. The formulation data must include the weight fraction (g compound/g product) for each VOC ingredient used in the product in an amount greater than or equal to 0.1 percent, plus the weight fraction of all other ingredients including: Water, total solids, and any other compounds assigned an RF of zero. The formulation data must also include the information in either paragraph (d)(5)(i) or (ii) of this section.

(i) For compounds listed in Table 2A of this subpart, the chemical name, CAS number, and the applicable reactivity factor.

(ii) For hydrocarbon solvent mixtures listed in either 2B or 2C or this table, the trade name, solvent mixture manufacturer, bin number, and the applicable reactivity factor.

(e) If you claim the exemption under § 59.501(e), you must submit an initial notification no later than 90 days before the compliance date or at least 90 days before the date that you first manufacture aerosol coatings, whichever is later. The initial notification must include the information in paragraphs (e)(1) through (e)(6) of this section.

(1) Company name;

(2) Name, title, number, address, telephone number, e-mail address, and signature of certifying company official;

(3) A list of the product categories from Table 1 of this subpart that you manufacture;

(4) The total amount of product you manufacture in each category and the total VOC mass content of such products for the preceding calendar year;

(5) The street address of each of your facilities in the United States that is manufacturing aerosol coatings that are subject to the provisions of this subpart and the street address where compliance records are maintained for each site, if different; and

(6) A list of the States in which you sell or otherwise distribute the products you manufacture.

(f) If you claim the exemption under § 59.501(e), you must file an annual report for each year in which you claim an exemption from the limits of this subpart. Such annual report must be filed by March 1 of the year following the year in which you manufactured the products. The annual report shall include the same information required in paragraphs (e)(1) through (e)(6) of this section.

(g) If you are a manufacturer, importer, or distributor who chooses to certify that you will maintain records for a regulated entity for all or part of the purposes of § 59.510 and this section, you must submit a report to the appropriate Regional Office listed in § 59.512. This report must include the information contained in (g)(1) though (g)(4) of this section.

(1) Name and address of certifying entity;

(2) Name and address(es) of the regulated entity for which you are accepting responsibility;

(3) Description of specific requirements in § 59.510 and this section for which you are assuming responsibility and explanation of how all required information under this subpart will be maintained and submitted, as required, by you or the regulated entity; and

(4) Signature of responsible official for the company.

(h) An entity that has provided certification under paragraph (g) of this section (the ''certifying entity'') may revoke the written certification by sending a written statement to the appropriate Regional Office listed in § 59.512 and to the regulated entity for which the certifying had accepted responsibility, giving a minimum of 90 days notice that the certifying entity is rescinding acceptance of responsibility for compliance with the requirements outlined in the certification letter. Upon expiration of the notice period, the regulated entity must assume responsibility for all applicable requirements.

(i) As a regulated entity in accordance with paragraph (a) of this section, you must provide the information requested in paragraphs (i)(1) through (i)(4) of this section every three years beginning in 2011 for reporting year 2010. The report shall be submitted by March 31 of the year following the reporting year to the appropriate Regional Office listed in § 59.512. The first report is due March 31, 2011, for calendar year 2010.

(1) All identification information included in paragraphs (b)(1), (b)(2), and (b)(4) of this section;

(2) For each product category, VOC formulation data for each formulation that was manufactured, imported, or distributed in the reporting year. The formulation data must include the weight fraction (g compound/g product) for each VOC ingredient used in the product in an amount equal to or greater than 0.1 percent. If a regulated entity can certify that the reporting is being completed by another regulated entity for any product, no second report is required. The formulation data must include the information in either paragraph (i)(2)(i) or (i)(2)(ii) of this section for each VOC present in an amount greater than or equal to 0.1 percent.

(i) For compounds listed in Table 2A of this subpart, the chemical name, CAS number, and the applicable reactivity factor; or

(ii) For hydrocarbon solvent mixtures listed in either 2B or 2C of this subpart, the trade name, solvent mixture manufacturer, bin number, and the applicable reactivity factor.

(3) For each formulation, the total mass of each individual VOC species present in an amount greater than or equal to 0.1 percent of the formulation, that was manufactured, imported, or distributed in the reporting year; and

(4) For each formulation, a list of the individual product codes by UPC or other unique identifier.

(j) If a regulated entity identifies a VOC that is needed for an aerosol formulation that is not listed in Tables 2A, 2B, or 2C of this subpart, it is assigned a default RF factor of 22.04 g O3/g VOC. Regulated entities may petition the Administrator to add a compound to Table 2A, 2B, or 2C of this subpart. Petitions must include the chemical name, CAS number, a statement certifying the intent to use the compound in an aerosol coatings product, and adequate information for the Administrator to evaluate the reactivity of the compound and assign a RF value consistent with the values for the other compounds listed in Table 2A of this subpart. Any requests submitted to EPA on or before June 1, 2008 will be considered and, if appropriate, incorporated into Table 2A, 2B, or 2C of this subpart on or before January 1, 2009.

§ 59.512 Addresses of EPA regional offices.

All requests (including variance requests), reports, submittals, and other communications to the Administrator pursuant to this regulation shall be submitted to the Regional Office of the EPA which serves the State or territory for the address that is listed on the aerosol coating product in question. These areas are indicated in the following list of EPA Regional Offices.

EPA Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), Director, Office of Environmental Stewardship, Mailcode: SAA, JFK Building, Boston, MA 02203.

EPA Region II (New Jersey, New York, Puerto Rico, Virgin Islands), Director, Division of Enforcement and Compliance Assistance, 290 Broadway, New York, NY 10007–1866.

EPA Region III (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia), Air

Protection Division, 1650 Arch Street, Philadelphia, PA 19103.
EPA Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee), Director, Air, Pesticides and Toxics, Management Division, 345 Courtland Street, NE., Atlanta, GA 30365.
EPA Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Director, Air and Radiation Division, 77 West Jackson Blvd., Chicago, IL 60604–3507.
EPA Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), Director, Air, Pesticides and Toxics Division, 1445 Ross Avenue, Dallas, TX 75202–2733.
EPA Region VII (Iowa, Kansas, Missouri, Nebraska), Director, Air and Toxics Division, 726 Minnesota Avenue, Kansas City, KS 66101.
EPA Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming), Director, Air and Toxics Division, 999 18th Street, 1 Denver Place, Suite 500, Denver, Colorado 80202–2405.
EPA Region IX (American Samoa, Arizona, California, Guam, Hawaii, Nevada), Director, Air Division, 75 Hawthorne Street, San Francisco, CA 94105.
EPA Region X (Alaska, Oregon, Idaho, Washington), Director, Air and Toxics Division, 1200 Sixth Avenue, Seattle, WA 98101.

§ 59.513 State authority.

The provisions in this regulation will not be construed in any manner to preclude any State or political subdivision thereof from:

(a) Adopting and enforcing any emission standard or limitation applicable to a manufacturer, distributor or importer of aerosol coatings or components in addition to the requirements of this subpart.

(b) Requiring the manufacturer, distributor or importer of aerosol coatings or components to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of a facility for manufacturing an aerosol coating or component.

§ 59.514 Circumvention.

Each manufacturer, distributor, and importer of an aerosol coating or component subject to the provisions of this subpart must not alter, destroy, or falsify any record or report, to conceal what would otherwise be noncompliance with this subpart. Such concealment includes, but is not limited to, refusing to provide the Administrator access to all required records and date-coding information, misstating the PWR content of a coating or component batch, or altering the results of any required tests to determine the PWR.

§ 59.515 Incorporations by reference.

(a) The following material is incorporated by reference (IBR) in the paragraphs noted in § 59.508. These incorporations by reference were approved by the Director of the **Federal Register** in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of approval, and notice of any changes in these materials will be published in the **Federal Register**.

(1) California Air Resources Board Method 3–0—Determination of Volatile Organic Compounds (VOC) in Consumer Products and Reactive Organic Compounds in Aerosol Coating Products (May 5, 2005), IBR approved for § 59.508.

(2) South Coast Air Quality Management District (SCAQMD) Test Method 318–95, Determination of Weight Percent Elemental Metal in Coatings by X-ray Diffraction, (July, 1996), IBR approved for § 59.508.

(3) ASTM Method D523–89 (Reapproved 1999), Standard Test Method for Specular Gloss, IBR approved for § 59.508.

(b) You may obtain and inspect the materials at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M Street, SW., Washington, DC; the EPA Library, 109 T.W. Alexander Drive, U.S. EPA, Research Triangle Park, North Carolina; you may inspect the materials at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*.

§ 59.516 Availability of information and confidentiality.

(a) Availability of information. The availability to the public of information provided to or otherwise obtained by the Administrator under this part shall be governed by part 2 of this chapter.

(b) Confidentiality. All confidential business information entitled to protection under section 114(c) of the Clean Air Act (CAA) that must be submitted or maintained by each regulated entity pursuant to this subpart shall be treated in accordance with 40 CFR part 2, subpart B.

(c) Reports and Applications. The content of all reports and applications required to be submitted to the Agency under § 59.511, § 59.509, or § 59.502 are not entitled to protection under Section 114(c) of the CAA.

TABLE 1 TO SUBPART E OF PART 59.—PRODUCT-WEIGHTED REACTIVITY LIMITS BY COATING CATEGORY

[g O_3/g product]

Coating category	Category code [a]	Reactivity limit
Clear Coatings	CCP	1.50
Flat Coatings	FCP	1.20
Fluorescent Coatings	FLP	1.75
Metallic Coatings	MCP	1.90
Non-Flat Coatings	NFP	1.40
Primers	PCP	1.20
Ground Traffic/Marking	GTM	1.20
Art Fixatives or Sealants	AFS	1.80
Auto body primers	ABP	1.55
Automotive Bumper and Trim Products	ABT	1.75
Aviation or Marine Primers	AMP	2.00
Aviation Propellor Coatings	APC	2.50
Corrosion Resistant Brass, Bronze, or Copper Coatings	CRB	1.80
Exact Match Finish—Engine Enamel	EEE	1.70
Exact Match Finish—Automotive	EFA	1.50
Exact Match Finish—Industrial	EFI	2.05
Floral Sprays	FSP	1.70
Glass Coatings	GCP	1.40

TABLE 1 TO SUBPART E OF PART 59.—PRODUCT-WEIGHTED REACTIVITY LIMITS BY COATING CATEGORY—Continued

[g O_3/g product]

Coating category	Category code [a]	Reactivity limit
High Temperature Coatings	HTC	1.85
Hobby/Model/Craft Coatings, Enamel	HME	1.45
Hobby/Model/Craft Coatings, Lacquer	HML	2.70
Hobby/Model/Craft Coatings, Clear or Metallic	HMC	1.60
Marine Spar Varnishes	MSV	0.90
Photograph Coatings	PHC	1.00
Pleasure Craft Primers, Surfacers or Undercoaters	PCS	1.05
Pleasure Craft Topcoats	PCT	0.60
Polyolefin Adhesion Promoters	PAP	2.50
Shellac Sealers, Clear	SSC	1.00
Shellac Sealers, Pigmented	SSP	0.95
Slip-Resistant Coatings	SRC	2.45
Spatter/Multicolor Coatings	SMC	1.05
Vinyl/Fabric/Leather/Polycarbonate Coatings	VFL	1.55
Webbing/Veiling Coatings	WFC	0.85
Weld-Through Primers	WTP	1.00
Wood Stains	WSP	1.40
Wood Touch-up/Repair or Restoration Coatings	WTR	1.50

[a] Regulated entities may use these category codes or define their own in accordance with § 59.511(b)(6).

TABLE 2A TO SUBPART E OF PART 59.—REACTIVITY FACTORS

Compound	CAS No.	Reactivity factor
1-Butanol	71–36–3	3.34
1,2,4-Trimethylbenzene	95–63–6	7.18
2-Butanol (s-Butyl alcohol)	78–92–2	1.60
2-Butoxy-1-Ethanol (Ethylene glycol monobutyl ether)	111–76–2	1.67
2-Propoxyethanol (ethylene glycol monopropyl ether)	2807–30–9	3.52
Acetone (Propanone)	67–64–1	0.43
Amyl acetate (Pentyl ethanoate, pentyl acetate)	628–63–7	0.96
Butane	106–97–8	1.33
Butyl acetate, n	123–86–4	0.89
Cyclohexanone	108–94–1	1.61
Di (2-ethylhexyl phthalate)	117–81–7	.....
Diacetone alcohol	123–42–2	0.68
Diethanolamine	111–42–2	4.05
Diisobutyl ketone	108–83–8	2.94
Dimethyl ether	115–10–6	0.93
Ethanol	64–17–5	1.69
Ethyl acetate	141–78–6	0.64
Ethyl benzene	100–41–4	2.79
Ethyl-3-Ethoxypropionate	763–69–9	3.61
Ethylene glycol monoethyl ether acetate (2-Ethoxyethyl acetate)	111–15–9	1.9
Heptane	142–82–5	1.28
Hexane	110–54–3	1.45
Isobutane	75–28–6	1.35
Isobutanol	78–83–1	2.24
Isobutyl Acetate	110–19–0	0.67
Isohexane Isomers	107–83–5	1.80
Isopropyl alcohol (2-Propanol)	67–63–0	0.71
Methanol	67–56–1	0.71
Methyl amyl ketone	110–43–0	2.80
Methyl ethyl ketone (2-Butanone)	78–93–3	1.49
Methyl isobutyl ketone	108–10–1	4.31
Methyl n-Propyl Ketone (2-Pentanone)	107–87–9	3.07
N,N-Dimethylethanolamine	108–01–0	4.76
N-Butyl alcohol (Butanol)	71–36–3	3.34
Pentane	109–66–0	1.54
Propane	74–98–6	0.56
Propylene glycol	57–55–6	2.75
Propylene glycol monomethyl ether acetate	108–65–6	1.71
Texanol (1,3 Pentanediol, 2,2,4-trimethyl, 1-isobutyrate)	25265–77–4	0.89
Toluene	108–88–3	3.97
Vinyl Chloride	75–01–4	2.92
Xylene, meta-	108–38–3	10.61
Xylene, ortho-	95–47–6	7.49
Xylene, para-	106–42–3	4.25

TABLE 2B TO SUBPART E OF PART 59.—REACTIVITY FACTORS FOR ALIPHATIC HYDROCARBON SOLVENT MIXTURES

Bin	Average boiling point * (degrees F)	Criteria	Reactivity factor
1	80–205	Alkanes (< 2% Aromatics)	2.08
2	80–205	N– & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.59
3	80–205	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	2.52
4	80–205	Alkanes (2 to < 8% Aromatics)	2.24
5	80–205	Alkanes (8 to 22% Aromatics)	2.56
6	>205–340	Alkanes (< 2% Aromatics)	1.41
7	>205–340	N– & Iso-Alkanes (≥ 90% and < 2% Aromatics)	1.17
8	>205–340	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.65
9	>205–340	Alkanes (2 to < 8% Aromatics)	1.62
10	>205–340	Alkanes (8 to 22% Aromatics)	2.03
11	>340–460	Alkanes (< 2% Aromatics)	0.91
12	>340–460	N– & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.81
13	>340–460	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	1.01
14	>340–460	Alkanes (2 to < 8% Aromatics)	1.21
15	>340–460	Alkanes (8 to 22% Aromatics)	1.82
16	>460–580	Alkanes (< 2% Aromatics)	0.57
17	>460–580	N- & Iso-Alkanes (≥ 90% and < 2% Aromatics)	0.51
18	>460–580	Cyclo-Alkanes (≥ 90% and < 2% Aromatics)	0.63
19	>460–580	Alkanes (2 to < 8% Aromatics)	0.88
20	>460–580	Alkanes (8 to 22% Aromatics)	1.49

* Average Boiling Point = (Initial Boiling Point + Dry Point) / 2 (b) Aromatic Hydrocarbon Solvents

TABLE 2C TO SUBPART E OF PART 59.—REACTIVITY FACTORS FOR AROMATIC HYDROCARBON SOLVENT MIXTURES

Bin	Boiling range (degrees F)	Criteria	Reactivity factor
21	280–290	Aromatic Content (≥98%)	7.37
22	320–350	Aromatic Content (≥98%)	7.51
23	355–420	Aromatic Content (≥98%)	8.07
24	450–535	Aromatic Content (≥98%)	5.00

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