

the presence of exempt VOCs, since the section 94508(67) definition of "percent by weight", which is used in determining compliance with the section 94509(a) VOC standards, already explicitly subtracts the weight of exempted VOCs from the total VOC weight. It would be unnecessarily confusing to repeat the same provisions in section 94515.

- o We do not agree with the commenter's contention that production records should take precedence over analytical test results at all times in determining compliance. In support of this contention, the commenter cites his belief that Method 24/24A, when used to measure VOCs from cleaning product matrices, would result in erroneous VOC determinations because of the release of hydrated water. No data was submitted to support this contention. It is true that the first gravimetric analysis described in Method 24 would result in the volatilization of any entrained water in the determination of total volatile content (i.e., water + VOCs + exempt compounds). However, the water content is then separately determined either by Karl Fischer titration (ASTM 4017-81) or by direct injection into a gas chromatograph (ASTM D-3792-79), as specified in Method 24. To calculate the true VOC content (including exempted VOCs), the method specifies that the measured water content be subtracted from the total volatile content initially determined under Method 24. Thus, the test method cited in the regulation already corrects for the release of hydrated water in products being tested.

There are several additional reasons why it is inappropriate to limit the ARB to the use of only one enforcement instrument - a manufacturer's records - at all times and under all conditions. Without an independent mechanism which a regulatory agency can use to verify reported VOC levels (e.g., analytical test methods), a regulation's strict reliance on manufacturer's records would encourage intentional circumvention of the standards. We recognize

that there will probably be occasions when the use of production records would be appropriate for compliance determinations. In such cases, the use of production records should be established on a case-by-case basis, taking into account a variety of factors such as the reliability and accuracy of the records. This approach will help prevent abuse of this provision while still allowing the use of production records when appropriate.

We also recognize that there may be occasions when a manufacturer's production records show a VOC content which does not correspond with the VOC content measured using the test methods. Because there may be hundreds of possible explanations for such a discrepancy, we do not believe that it is feasible to establish a rigid regulatory framework for reconciling possible differences. As stated above, an explanation must be established on a case by case basis. If a manufacturer does not agree with an ARB contention that a violation of the regulation has occurred, the manufacturer can simply refuse to settle the matter and allow it to be resolved by the courts, which are well equipped to resolve conflicting claims of this nature.

115. Comment: We remain concerned that none of the test methods referenced in section 94515(a) have been validated for any of the products covered by this regulation, and indeed are not designed to determine "percent by weight" VOC content, as this term is defined and used in the Table of Standards of this regulation. Until and unless methods can be developed and validated that are relevant to assessing compliance with the various provisions of this regulation, no test methods should be cited. (CSMA)

Agency Response: Test methods are crucial to the regulation, since without them it is not possible to determine whether a regulatory violation has occurred. The test methods specified in section 94515(a) were adopted as part of the Phase I consumer products rulemaking. As with all provisions in the regulation, ARB staff consulted with industry representatives in the

past on which test methods would be appropriate to use. No alternative methods were suggested by industry representatives, and we believe that the referenced test methods represent the best ones available. These methods represent currently accepted analytical tests which have been in use by the ARB and other regulatory agencies for years. In fact, the EPA's Method 24 is probably one of the most widely-used gravimetric (i.e., weight loss) analytical methods in the nation.

ARB staff recognizes that some of the methods cited were not originally designed with consumer products in mind. However, we believe that these and possibly other methods can be readily adapted for use with consumer products. For those situations where a manufacturer believes that the referenced test methods may not be appropriate, the section 94515(a) allows the use of Executive Officer-approved alternative test methods which have been demonstrated to be equivalent to the cited methods. Section 94515(b) also allows the use of accurate and verifiable manufacturer's production records in order to determine compliance. We believe these alternative provisions provide sufficient flexibility to address the concerns expressed by the commenter.

116. Comment: Section 94515(b) states: "In any case where a manufacturer's records appear to demonstrate compliance but compliance is not demonstrated by actual testing conducted pursuant to the test methods specified in section 94515, the results of the testing may be used to establish a violation of the requirements of this article." Since it is neither fair nor reasonable to utilize inadequate and unvalidated test methods over the validated production and formulation records of a company, we urge that the this sentence be deleted from the regulation until such time that reliable and accurate test methods can be developed for assessing compliance. (CSMA)

Agency Response: The language cited by the commenter has been deleted. Section 94515(b) now states that the VOC content of a product can also be calculated through the use of accurate records of the product's

individual constituents, provided that such records are established for each day of production and kept for at least three years.

117. Comment: The test methods listed in section 94515 have not been validated for consumer products. Therefore, we ask the Board for latitude in approving alternative methods under 94515(a). We object to the new language in 94515(b) which states that a violation of the regulation may be established by testing under 94515. We ask that section 94515(b) be amended by striking the new language in the paragraph (i.e., "In any case where a manufacturer's records appear to demonstrate compliance..."). In the alternative, we ask that 94515(b) be amended to recognize alternative analytical methods. (HC)

Agency Response: The language cited by the commenter has been deleted. The ARB staff does not believe that additional language for allowing alternative methods is necessary in section 94515(b) since section 94515(a) already allows the use of Executive Officer-approved alternative test methods that are shown to accurately determine the concentration of VOCs in a product.

118. Comment: The use of equivalent or more accurate test methods and the use of adjusted test results to account for the presence of exempted VOCs in the products should be allowed. Also, this section should be revised to state that production records described in section 94515(b) take precedence over the analytical tests listed under section 94515(a) in determining compliance. Section 94515 should be revised as follows:

- (a) "Testing to determine compliance...which are shown to the satisfaction of the Executive Officer to accurately determine the concentration of nonexempt VOCs in a subject product or its emissions may be used upon approval of the Executive Officer to determine compliance.

- (b) In determining compliance with this article, the Executive Officer shall adjust test results to exclude exempted VOCs contained in a product or its emissions which are included in the results of analytical test measurements made of the product.
- (c) Testing to determine compliance...at least three years. Testing for compliance through calculations based on the records specified in this subsection takes precedence over analytical results obtained using the methods listed under subsection (a)."

The following are reasons for revising section 94515:

- (a) due to the vast number of consumer product ingredients, potential combinations and the wide range of use conditions, there will always be instances where the methods listed in subsection (a) are inappropriate for some products.
- (b) due to the effort needed in demonstrating the accuracy of an alternative method, it is unreasonable to allow the Executive Officer the option to not approve an alternative method that has been shown to his/her satisfaction to be capable of determining accurately the concentration of nonexempt VOCs in a product or a product's emissions.
- (c) any method shown to provide a more accurate measurement of the nonexempt VOCs in a product or product's emissions should take precedence over all other methods.
- (d) data collected from production records, a much more reliable method of measurement, should take precedence over results obtained in tests using the methods in subsection (a).
- (e) compliance cannot be solely determined by analytical measurements. Measurements from the first method listed will

likely overestimate VOC content because it will include compounds specifically exempted under section 94510, such as fragrances, and include compounds which can volatilize at temperatures up to 120° C, far in excess of the normal use temperatures expected for most products. (SDA)

Agency Response: Except for comment (b) above, these comments have already been addressed in staff's responses to Comments 113 through 117. As for comment (b), it appears that the commenter may be misinterpreting the language of section 94515(a). It is implicit in this language that the Executive Officer will act reasonably in deciding whether or not to approve an alternative test method for a particular purpose. Given the many possible test methods and the difficult judgement calls that may be required in approving them, we believe it is essential to allow the Executive Officer this discretion to act according to his or her best judgment. The last sentence in section 94515(a) also specifies that an alternative test method may be used because, depending on the circumstances, there may often be more than one accurate test method that could be used in a particular case. In such a case, it would be inappropriate to specify that only one alternative method shall be used, since the other referenced methods may provide practical advantages such as cost or ease of use. In addition, several manufacturers have expressed the need to maintain the confidentiality of their test methods. If these alternative test methods are approved for use by the Executive Officer, then a requirement that the alternative methods shall be used may inappropriately infringe on the confidentiality rights of the manufacturers who provided the alternative methods.

0. Variances

119. Comment: Section 94514(b) should be modified to make the public hearing optional rather than required. The likelihood of a manufacturer successfully reformulating a FIFRA-registered product and then completing reviews at both EPA and CDPR by the dates specified in section 94509 is very

low. The requirement of conducting a public hearing on the variance application is problematic. The FIFRA review process is confidential, so competitors are not normally aware of a manufacturer's intentions to modify a formula until after the product appears on the store shelves. Holding a public hearing on a variance request could predisclose valuable business information to the public, including the manufacturer's competitors. Short of eliminating the public hearing requirement, modifying section 94514(b) such that a public hearing is optional and not mandatory is a step in the right direction. (PG)

Agency Response: It would not be appropriate to remove the public hearing requirement for variances. Historically, variance hearings by the ARB and air pollution control districts have been public proceedings. This is because the public has a right to be informed and provide comments on proposals to delay or relax air pollution standards. However, to address the commenter's concerns, the variance procedure was modified to provide that confidential (i.e. trade secret) information may be protected from public disclosure during a variance hearing. This modification is discussed in the response to Comment 47.

P. Comments on Specific Categories of Consumer Products

Aerosol Cooking Sprays

120. Comment: To meet the 18 percent VOC level proposed by ARB staff would make PAM an unacceptable product to consumers. PAM would be acceptable only if the VOC content is at least 27 percent. The following are reasons why a higher VOC level is needed for a product such as PAM:

- (a) consumers prefer a clear, non-cloudy, non-foaming product such as PAM rather than low-VOC water-based emulsion type products. This is supported by market sales data, responses from a survey of PAM users and consumer focus group reactions to the use of PAM, Mazola and Wesson Lite.

- (b) laboratory studies conducted in 1990 showed that water-based products such as Wesson Lite had poorer no-stick qualities than PAM when used on baked goods. More than three times the normal amount of Wesson Lite was used in some cases. Also, data generated by Creative Products showed that, except for one product, all anhydrous products exhibited much better release scores than water-based, emulsion products.
- (c) health authorities recommend the reduction in cholesterol, saturated fat and total fat intake. Substituting PAM for butter, margarine or oil twice a day could reduce the total calories from fat to less than 30 percent.
- (d) PAM institutional products can meet the 18 percent VOC limit and is acceptable to professional cooks but an 18 percent retail product is unacceptable to retail consumers due to appearance.
- (e) technologies have been actively pursued to reduce VOCs in PAM without it being rejected by consumers. Rejecting PAM would obviously harm American Home Food Products, Inc., but would also affect California consumers who would find all cooking sprays in the category unacceptable and return to cooking with butter, margarine or oil.
- (f) considering the time required to fully develop and test a new product line and the time required by American Home Food Products and/or its suppliers to re-tool or order and install new production equipment, an acceptable reduced VOC PAM is unlikely to be produced by the January 1, 1995, compliance date.

(AHFP, CSMA, AHPC)

Agency Response: (a) ARB staff disagrees with the commenters' claim that consumers necessarily prefer clear, non-cloudy, non-foaming products that can only be provided at a higher VOC level. Aerosol cooking sprays

consist of both opaque water-based sprays as well as semi-foaming to semi-clear anhydrous sprays. The ARB 1991 consumer product survey data indicate that almost 50 percent of the market already complies with the 18 percent VOC limit. It is clear from the survey that products accepted by consumers can be manufactured and marketed at the proposed VOC standard. Similarly, the focus groups referred to by the commenter consisted of PAM users who were given leading questions which placed PAM in a more positive light compared to the other products. This type of survey is of little value in supporting broad generalizations about consumer preferences.

(b) ARB staff agrees that different aerosol cooking sprays may have different performance properties. Not all aerosol cooking sprays will perform well in all types of cooking situations. Some cooking sprays may perform better in frying situations, others may perform better in baking situations, and still others may perform well in both situations. However, in the absence of uniform industry standards for testing food release characteristics for aerosol cooking sprays, these differences cannot be meaningfully quantified. Besides, performance is not necessarily a direct function of the VOC content. As explained in (a) above, a range of complying formulations comprise almost 50 percent of the market for aerosol cooking sprays. This indicates that consumers are satisfied with the various choices of formulations and that these formulations have the desired performance characteristics. Regarding the information generated by Creative Products, the data cannot be meaningfully evaluated because no detailed information was provided about the test date, test procedure, specific foods used or specific sprays used, etc. Furthermore, the Creative Products data did not differentiate between alcohol-anhydrous (e.g., PAM) and non-alcohol-anhydrous products.

(c) The 18 percent VOC standard will not affect the health benefits of products in the aerosol cooking spray category because all the complying products offer essentially the same health benefits as PAM. All such products can be used as a cooking substitute for the reduced intake of cholesterol, saturated fat and total fat intake.

(d) As explained above, almost 50 percent of the market share for aerosol cooking sprays complies with the 18 percent VOC limit. Many of these products are sold at the retail level and their appearances range from opaque to semi-foamy and semi-clear. This indicates that appearance is not necessarily a major criterion for purchase nor is a high VOC product necessary for the retail market.

(e) As explained above, since a range of complying formulations comprise almost half of the market share for the aerosol cooking spray category, there is no evidence to indicate that consumers will find all aerosol cooking sprays unacceptable and return to cooking with butter, margarine or oil.

(f) ARB staff believes that adequate time has been provided to reformulate aerosol cooking sprays to meet the standard. Since there are already complying products in this category, it will not be necessary to develop completely new technology or products in order to comply. It should be possible for American Home Food Products (AHFP) to utilize technology transfer from these existing products to comply, particularly in light of the fact that AHFP already sells products that meet the 18 percent standard in the industrial and institutional and retail markets.

121. Comment: Even though the low-VOC cooking sprays are not as good as PAM, ARB staff has stated that consumers are purchasing them. There is no data to support the contention that users of PAM and other cooking sprays will turn to these low-VOC products rather than leave the category. (AHFP)

Agency Response: The possibility exists that some aerosol cooking spray users will stop purchasing these products. It will be up to each individual consumer to make this choice. However, any consumer who wishes to purchase an acceptable product will be able to buy one, and be able to enjoy the same health benefits and convenience that he or she enjoys today. Furthermore, it is the commenter's subjective opinion that low-VOC cooking sprays are "not as good as PAM". There is ample evidence in the Technical

Support Document, pages V.7 through V.14, that demonstrate that the proposed standard is both technologically and commercially feasible.

122. Comment: ARB staff has used some of PAM's own lower VOC products and believes they perform well enough at or below the proposed 18 percent level. This is testimony data and even ARB staff would not accept such data as definitive. (AHFP)

Agency Response: The anecdotal information given by ARB staff was taken out of context. ARB staff purchased and used samples of aerosol cooking sprays to obtain background information and become more familiar with the category. The information given by ARB staff was based on individual impressions, and was not advanced as a justification for the proposed standards. The basis for the proposed standards is discussed at length on Pages V.7 through V.14, of the Technical Support Document.

123. Comment: American Home Products Corporation (AHPC) requested the ARB to extend by two years the proposed standard of 18 percent VOC from January 1, 1995 to January 1, 1997. The following are reasons for requesting the extension:

- (a) the potential deprivation of health benefits should PAM be unavailable in its present form and packaging which must be weighed in regard to the non-increased risks for a short period associated with the VOC problem when consumers turn to butter, oil, and margarine or less accepted spray formulations, and
- (b) the major economic disenfranchisement of American Home Food Products, Inc., by the proposed regulation, with the concomitant result of a major unwarranted, unnecessary, unconstitutional and illegal restructuring of that market which will ultimately cause the demise of the entire cooking category, and

- (c) the proposed 18 percent VOC limit is unduly harsh and unnecessary for a category that releases not more than 0.7 tons of VOC per day when other large categories and segments of industry would yield many more times the savings, and
- (d) the ARB should consider establishing an I & I subcategory with an 18 percent limit and require its implementation sooner while extending the 18 percent limit for a retail subcategory to January 1, 1997, thereby allowing industry to do the proper, difficult and time consuming job of reformulation and packaging, and
- (e) Since AHPC's patent no. 4,188,412 will expire on February 12, 1997, which will allow other companies to enter the market at higher VOC levels, it will be in AHPC's best interest to reformulate to meet California's regulations to avoid duplication of the regulations in other states. AHPC pledges that if it can technologically and commercially achieve a lower level before the requested January 1, 1997 date, it will do so. (AHPC)

Agency Response: (a) The 18 percent VOC standard will not affect the health benefits of products in the aerosol cooking spray category because all the complying products provide similar health benefits as PAM. They too can be used as a cooking substitute for the reduced intake of cholesterol, saturated fat, and total fat intake. According to the ARB 1991 consumer product survey data, almost 50 percent of the complying market share for aerosol cooking sprays is comprised of a range of formulations, which indicates that consumers do not necessarily require that aerosol cooking formulations be like PAM or have a high VOC content.

(b) The responses to Comments 120-122 explain why the proposed 18 percent standard is necessary, appropriate, and will not lead to the "demise of the entire cooking category". With regard to the statement that the proposed regulations are "illegal" and "unconstitutional", the commenter has not

identified specific laws or constitutional provisions that are violated by the regulatory proposal, and the ARB believes that all applicable laws and procedures have been complied with in this rulemaking action.

(c) The Staff Report describes on pages 9 through 14 why it is necessary to reduce emissions from consumer products. To briefly summarize, consumer products are a significant source of VOC emissions, especially in the most populated areas of the state where serious air quality problems are present despite years of increasingly stringent controls on stationary and mobile source emissions. Emissions from consumer products are estimated to be about 200 tons per day in 1987 and account for approximately 10 percent of all non-vehicular VOC emissions in California. Although the VOC emissions from aerosol cooking sprays may be relative small, when combined with the VOC emissions from other categories, the total VOC emissions are significant. Furthermore, the proposed 18 percent VOC limit is not unduly harsh. The California Clean Air Act of 1988 required, in part, that the maximum feasible reduction of reactive organic compound emissions from consumer products be achieved. The 18 percent VOC limit is based on careful analysis of the data collected by ARB staff, and we believe that this standard is both necessary and technologically and commercially feasible.

(d) It is not necessary to establish separate standards and effective dates for industrial and institutional (I&I) and retail subcategories for aerosol cooking sprays. According to the ARB 1991 VOC survey, of the 31 complying products, 11 are sold for household use, 15 are sold for I&I use and 5 are sold for both markets. This indicates that there are products in both subcategories that can currently meet the 18 percent VOC limit, and thus a single standard is appropriate. Furthermore, ARB staff believes adequate time is available to reformulate aerosol cooking sprays to meet the standard. Like other categories, the VOC standards have been set such that there are complying products in this category; therefore, it is not necessary to develop completely new technology or products in order to comply. ARB staff believes that adequate time has been provided to reformulate aerosol cooking sprays to meet the standard. Since there are

already complying products in this category, it will not be necessary to develop completely new technology or products in order to comply. It should be possible for American Home Food Products (AHFP) to utilize technology transfer from these existing products to comply, particularly in light of the fact that AHFP already sells products that meet the 18 percent standard in the industrial and institutional and retail markets.

(e) We agree that it is appropriate for the commenter to reformulate PAM to meet California's regulations. However, ARB staff believes it is not necessary to extend the compliance date to January 1, 1997. The ARB 1991 consumer product survey data indicates that currently almost 50 percent of the market share for aerosol cooking sprays complies with the 18 percent VOC limit, which shows this limit is technologically and commercially feasible by the effective date of January 1, 1995.

124. Comment: Three subcategories of aerosol cooking sprays should be developed. The subcategories and their proposed VOC limits should be:

- (a) aerosol alcohol cooking sprays (36 percent) (30 percent beginning in 1997),
- (b) aerosol baking sprays (25 percent), and
- (c) aerosol alcohol-free cooking sprays (20 percent).

These levels would allow for on-going, low emission, quality cooking sprays and a low-fat, low calorie, no cholesterol way to cook. (CP)

Agency Response: As explained on pages V.7 through V.14 of the Technical Support Document, the proposed VOC standard of 18 percent represents 31 complying products and a complying market share of almost 50 percent (as reported in the 1991 ARB VOC survey). The complying products represent a variety of different formulations, such as water-based emulsions and anhydrous products, and have demonstrated consumer acceptance. The complying products also include pan release and flavoring sprays. Furthermore, there is no difference in health benefits between the complying

and noncomplying products, since the complying products also provide a low-fat, low calorie, no cholesterol way to cook. Therefore, there is no justification for the commenter's suggested subcategorization and differing standards for aerosol cooking sprays.

125. Comment: The "single phase" system cooking sprays are presently using extremely low levels of VOCs already. At the proposed 18 percent level, the current product formulas will be negatively affected and many brands denied a viable product. (CP)

Agency Response: We do not agree. There are already complying products on the market that are "single phase" systems, which demonstrates that many of these brands are viable products. As described in pages V.8 through V.11 (Product Formulation) of the Technical Support Document, there are numerous aerosol cooking spray formulations available. From these many available formulations, ARB staff expects that manufacturers can reformulate their products utilizing technology transfer.

126. Comment: The regulation of aerosol cooking sprays should be postponed until research efforts by industry to develop and evaluate new technologies that could allow effective, consumer-acceptable cooking sprays with lower VOC emissions are completed. (CSMA)

Agency Response: There is no need to postpone the effective date of the standard because there are already consumer-acceptable complying aerosol cooking sprays available. This is substantiated by data from the ARB 1991 VOC survey which shows that 31 of the reported 45 aerosol cooking sprays currently comply with the 18 percent VOC limit.

127. Comment: To meet an 18 percent VOC level for aerosol cooking sprays would have serious consequences for the industry and consumers who use these products for the following reasons:

- (a) the VOC's in cooking sprays consist of hydrocarbon propellant and sometimes alcohol. Propellant levels cannot be reduced without reducing efficacy and incurring consumer dissatisfaction because of incomplete expulsion and poor aerosolization of the product;
- (b) poor aerosolization in these products would lead to incomplete coverage which would most likely lead to increased usage and therefore more VOC emissions;
- (c) there are no FDA-food-use-approved alternatives to hydrocarbon propellants that yield effective cooking sprays.
- (d) a reduction or elimination of alcohol in products that contain alcohol could decrease the efficiency of pan sprays and increase the need for propellant. With a reduction in alcohol, the amount of lecithin in the current serving size would be inadequate to provide efficacy, forcing the consumer to use more product and resulting in an increase in VOC emissions. (CSMA)

Agency Response: (a) ARB staff disagrees with the commenter that reducing propellant levels will reduce efficacy and incur consumer dissatisfaction. A consumer purchases a particular aerosol cooking spray because it meets his or her cooking needs. The ARB VOC survey indicates that almost half of the currently marketed products already comply with the 18 percent VOC limit. Since all of these complying products use hydrocarbon propellants, this clearly shows that it is possible to produce a low-VOC product which satisfies the needs of consumers for an efficacious aerosol cooking spray.

(b) ARB staff agrees that poor aerosolization could lead to incomplete coverage or increased VOC emissions; however, as explained above, these type of problems are not necessarily attributed to the propellant level. The type of ingredients used and valve system used can also affect aerosolization. As stated above, consumers are satisfied with the level of

performance from the complying products that are currently being sold in California.

(c) ARB staff disagrees that there are no FDA (Food and Drug Administration)-food-use-approved alternatives available for effective cooking sprays. As cited on page V.11 of the Technical Support Document, according to Johnsen (1991), there are food-approved compressed gases which include carbon dioxide, nitrous oxide and nitrogen. A few of the formulas described in the "Product Content Formulation" section of the Technical Support Document call for the possible use of carbon dioxide as a propellant. Another possible alternative is HFC-152a. While HFC-152a has not yet been approved as a food-grade propellant by the FDA, this propellant is commercially available and much of the toxicological testing has been done. HFC-152a is one possible option in the future, particularly for those manufacturers who want to continue using various ranges of alcohol in their formulations or have greater flexibility in developing different formulations.

(d) ARB staff agrees that a change in the alcohol content of an aerosol cooking spray may necessitate a change in other formulation aspects of the product. However, alcohol is not a necessary ingredient that needs to be present to help make these products work efficiently. The ARB VOC survey indicates that there are only a few alcohol-containing aerosol cooking sprays and none of them comply with the 18 percent VOC level. Since the low-VOC formulations contain no alcohol and comprise almost half of the products currently sold, this demonstrates that consumers are satisfied with their level of performance. Also, as stated in (a) above, the only VOCs present in these complying products are the propellants, which further demonstrates that alcohol is not needed to create a formulation with low propellant levels.

We also do not agree with the claim that a low amount of alcohol will affect the lecithin level, reduce efficacy, and increase VOC emissions. First, as previously stated, alcohol is not a necessary ingredient in

aerosol cooking sprays. Efficacious products can be formulated with or without it. Second, the key ingredient for pan release in all cooking sprays is lecithin. The fact that only a few products contain alcohol demonstrates that the lecithin level is not dependent on the presence of alcohol. Products which currently contain alcohol can be reformulated to function with an appropriate amount of lecithin and without alcohol. Since it is feasible to develop a non-alcohol-containing product that can function adequately with an appropriate level of lecithin, it is not credible to believe that a resultant increase in VOC emissions will occur.

128. Comment: The discussion on aerosol cooking sprays in the Technical Support Document fails to take into account that formulations that are commercially feasible for the institutional market are not necessarily commercially feasible for the home-use market, due to differences in those two markets. The institutional usage is almost entirely for frying, while home usage must also take into account baking-pan release usage. Institutional usage is less sensitive to efficacy, since the product tends to be repeatedly applied to a hot grill surface that is not washed between uses. And most importantly, institutional consumers are less sensitive to the appearance of the product during use. (CSMA)

Agency Response: ARB staff disagrees with the commenters' claim that formulations that are commercially feasible for the institutional market are not necessarily commercially feasible for the home-use market. While cooking sprays may be used more frequently for frying in an industrial and institutional setting than in a household setting, the ARB 1991 VOC survey indicates that at least 5 complying products are sold for use in both markets. This indicates that feasible formulations can be used in both settings. The survey also indicates that 11 complying products are sold for household use and 15 complying products are sold for industrial and institutional use. Indeed, if 11 complying products meet the level of scrutinized performance required of household consumers in varying capacities, it also means these products could perform well to the "less sensitive" institutional user. ARB staff has therefore concluded that there

are many products that can be used in varying capacities in both settings. Regarding the commenters' implied claim that household consumers are very sensitive to the appearance of aerosol cooking sprays, many of the products sold for household use have appearances which range from opaque to semi-foamy and semi-clear. This indicates that appearance is not necessarily a major criterion for household use.

Automotive Brake Cleaners

129. Comment: The safest and most effective brake cleaner products can only be formulated using 100 percent VOC ingredients. The VOC levels in brake cleaners should not be reduced from 100 percent at this time in order to develop more complete data on the overall impact of these products on California's air quality. (ACMC, AP, BP, CRC, CSMA, GEC, HI, TCC)

Agency Response: We do not agree that additional data is necessary. Based on information collected in ARB's 1991 consumer products survey, there are 45 products that currently comply with the proposed 50 percent VOC standard. Several of these products are water-based brake cleaners which we believe to have equal cleaning ability compared to products that presently use chlorinated solvents. As far as the impact of brake cleaners on California's air quality, the impact of VOC emissions from all consumer products, including brake cleaners, is addressed on pages III.1 to III.7 of the Technical Support Document. The total VOC emissions from brake cleaners are estimated at 1600 lbs/day based on the results of the ARB's 1991 consumer products survey.

130. Comment: To meet the ARB's proposed standards, water must replace VOCs. However, research efforts by suppliers and manufacturers to develop water-based brake cleaners with reduced VOC contents have been largely unsuccessful. Water-based brake cleaners don't work. (BP, BP, CI, MEMA, CSMA, FB, HI, RSC, CI)

Agency Response: We believe that water-based products do work. As stated in the response to Comment 129, ARB staff is aware of 45 brake cleaning products which can comply with the established standard of 50 percent VOC content by weight which are currently available on the market and used by consumers. Among the 45 products are manufacturers who formulate water-based and non-chlorinated (e.g., 1,1,1-trichloroethane) brake cleaners. This demonstrates that it is not necessary to replace all VOC's with water, and that it is commercially and technologically feasible to produce a brake cleaner that meets the 50 percent standard. Also, no evidence has been presented which indicates that water-based cleaners are ineffective. Manufacturers of these products have stated that they disagree with comments identifying their products as ineffective and have indicated that their products achieve similar performance characteristics.

131. Comment: If the ARB enforces the Phase II 50 percent VOC limits for brake cleaners, it will force the use of water and/or nonvolatile materials in the formulation. Water is not a compatible material for braking surfaces and control surfaces due to its negative effect on braking and its propensity toward corrosion of steel surfaces and ineffectiveness in cleaning critical soils found in brakes. Nonvolatile material would build up on braking surfaces and undoubtedly contribute to a loss of efficacy and a buildup of glaze on the braking surfaces. (AP, CSMA, CRC, MEMA)

Agency Response: We agree that the 50 percent VOC standard will require some manufacturers to reformulate their brake cleaners to incorporate water and other non-VOC compounds. However, staff is aware of no evidence that suggests the use of water-based cleaners will contribute to a buildup of nonvolatile material on braking surfaces. In fact, the available evidence shows that this is not a problem. Several manufacturers (U.S. Sales Co. & Ammco Tools, Inc.) currently recommend the use of water and detergent cleaning units known as the "Bird Bath" and the "Brake Assembly Washer". The manufacturers of these products are not aware of any adverse reactions caused by the use of their product (such as corrosion of steel surfaces or the buildup of nonvolatile material). Also, aerosol

manufacturers identified in the ARB 1991 consumer products survey already sell aerosol brake cleaners that are water-based.

132. Comment: For rebuilding brakes, any moisture that gets into the internal area can contaminate the brake fluid. Brake fluids are developed under DOT specifications for certain temperature limitations. Moisture, water, rust, or residue can change the characteristics of braking and the brake fluid, most likely reducing the temperature capability of the brake fluid which could cause brake failure. (TCC, CSMA, MEMA)

Agency Response: It is true that moisture, in fact any solvent or other material, can contaminate the brake fluid if the material gets into the internal areas of a brake caliper, wheel cylinder or master cylinder. It should be emphasized, however that contamination can occur from either water-based or solvent-based products. It should also be emphasized that such contamination of internal brake areas is extremely unlikely with proper use of the product and maintenance practice. Furthermore, rebuilders of automotive brake assemblies such as Friction Inc (reported to be the largest volume rebuilder in the country) use a water-based cleaning solution to degrease their disassembled brake calipers before rebuilding and have emphasized complete satisfaction with their current process. All of the foregoing information indicates that the proposed 50 percent VOC standard will not cause the problems suggested by the commenter.

133. Comment: The Chemical Specialties Manufacturers Association (CSMA) suggests the formation of a task force with members of industry and ARB staff to work together in reaching the goals of a low-VOC brake cleaner that would result in lower VOC emissions and be both technologically and commercially feasible. (CSMA)

Agency Response: As stated in the TSD, we believe that technologically and commercially feasible low-VOC brake cleaners are already available. The ARB does not believe that it is necessary to create a formal task force, as reformulation of existing brake cleaners can be effectively

addressed by individual companies in the private sector. However, ARB staff will be available for consultation with industry on an informal basis, and to address any problems that may arise from the implementation of the proposed VOC standards for brake cleaners.

134. Comment: There are indications from professional mechanics and do-it-yourselfers that alternative solvents such as gasoline or lacquer thinner would be used if a non-effective brake cleaner is all that is commercially available. This will result in possible health and safety concerns for mechanics when they turn to using 100 percent solvents and in a net increase of VOCs emitted to the atmosphere. (CSMA, MEMA)

Agency Response: While it is always possible that some individuals will choose to use alternative methods (such as gasoline or lacquer thinner) to clean brakes, such use will not be necessary. As discussed in the TSD (pages V.15-V.18) effective brake cleaners are already sold which meet the proposed 50 percent VOC standard. Given the existence of effective complying products, we do not believe that a significant percentage of the market will choose to use alternative products that are less convenient and less safe to use.

135. Comment: The proposed 50 percent VOC level is unrealistic. Although the level has been raised from 10 percent to 50 percent VOC, the 10 percent level was based on the use of exempt 1,1,1-trichloroethane solvent that must be eliminated due to its contribution to ozone depletion. (CRC, CSMA)

Agency Response: The proposed 50 percent limit is commercially and technologically feasible and does not require manufacturers to use 1,1,1-trichloroethane to comply with the standard. The ARB consumer products survey includes several automotive brake cleaning products which comply with the 50 percent standard without using 1,1,1-trichloroethane.

136. Comment: CRC presented a copy of test data to ARB staff that it commissioned some years ago. This study by South West Research Institute

(SWRI) clearly showed that braking efficiency would be improved up to a level of 24 percent by the use of a CRC brake cleaner. This is a safety feature that should not be sacrificed by requiring the 50 percent VOC formulations. CRC strongly requests the ARB to remove the Phase II level of 50 percent VOC for brake cleaners and to remove the category from the list of controlled substances. (AP, CRC, CI)

Agency Response: Safety will not be compromised by the proposed 50 percent standard. As discussed in both the TSD and the responses to previous comments, effective brake cleaners can be formulated to meet this standard.

With regard to the study conducted by South West Research Institute (dated September 11, 1970), we do not agree with the conclusions drawn from the study because we believe the testing did not represent realistic conditions that brake linings would encounter during normal vehicle operation and maintenance.

First, to contaminate the brakes the researchers immersed brake linings of a test vehicle in EP90 gear lubricant and brake fluid for a time period of 12 hours. This portion of the test subjected the brake linings to unrealistic conditions. The test should have been conducted using soils that are typically encountered on automotive brake linings. Second, after the brake linings had been soaked for 12 hours, they were cleaned with liquid and aerosol brake cleaner for comparison and reinstalled on the test vehicle. This procedure represents another unlikely process that would not occur in the real world. Proper maintenance practice would involve the replacement of the brake linings if they had been subjected to the conditions mentioned above. Due to liability and safety concerns, no attempt would be made to reinstall contaminated linings which had been cleaned in this way.

137. Comment: A 10 percent VOC brake cleaner, 10 percent VOC bug and tar remover, 46 percent VOC carburetor-choke cleaner and 20 percent VOC

lubricant would not adequately perform jobs the products were originally designed for. As a result, the consumer may use three or four times the ordinary amount of product or use another method to accomplish the task resulting in a net increase in VOC emissions for automotive aerosol sprays from both an air quality and consumer standpoint. (GM)

Agency Response: This comment refers to VOC standards that had been suggested by ARB staff prior to the start of the 45-day comment period. In response to industry comments and information contained in the 1991 Consumer Products survey, the proposed VOC content for automotive brake and carburetor-choke cleaners was raised to 50 percent and 75 percent respectively. The bug and tar remover and lubricant product categories were postponed from regulatory consideration pending further study. At the proposed 50 percent and 75 percent levels, staff believes that efficacious products can be produced, and that the consumer will not need to use additional product to accomplish the same task. Even if it could be argued that a particular 50 percent product might be less efficacious than 100 percent VOC product, a consumer would have to use twice as much of the 50 percent product to equal the emissions of the 100 percent product. There is no credible evidence demonstrating that this will occur, and the ARB therefore believes that the proposed standards will result in emission reductions. Further discussion of the feasibility of the proposed standards is contained in the Technical Support Document on pages V.15 to V.23.

138. Comment: Using methylene chloride and water in brake cleaners are non-solutions because of health and safety reasons. The current list of complying products developed by ARB staff is certainly suspect from the health/toxicological and safety reasons. (HI)

Agency Response: We agree that using methylene chloride in a brake cleaner formulation may not be a good choice of solvents due to the health concerns regarding methylene chloride and the fact that methylene chloride has been identified as a toxic air contaminant by the ARB. However, we do not agree that these same concerns are valid for water in brake cleaner

formulations. Water used in brake cleaner formulations does not introduce additional safety concerns regarding the operation of the brakes as the commenter suggests. This safety issue was addressed in great detail at the Board hearing, in the TSD, and in the response to Comments 131 and 132. The data clearly indicates that when used properly, water-based brake cleaners are efficacious and do not introduce any safety problems beyond that normally encountered from using brake cleaners in general.

Regarding the list of complying products, the 1991 consumer products survey did not contain specific enough information on each product to allow staff to determine the exact number of products using methylene chloride. However, the survey data did clearly show that there are a number of products that comply with the standard without using exempt compounds such as methylene chloride. This indicates that it is possible to meet the standard and not use methylene chloride as a solvent.

139. Comment: To remove glaze from brake linings a strong solvent is needed. Water-diluted alcohol solutions and emulsion cleaners do not provide sufficient efficacy. Water systems are slow drying and can cause increased rust on critical brake parts which can become a hazard. In addition, water-based formulations may leave surfactant or other residues on the brake parts, which could create loss of brake function upon rewetting. (CSMA)

Agency Response: We do not agree that a strong solvent is needed to remove glaze from brake linings. As discussed in the TSD, on pages V.17-V.18, the recommended procedure for eliminating "glaze" from brake linings involves either sanding to remove "glaze" or complete replacement of the linings. The latter method is usually employed due to liability and safety concerns.

While water-based specialty products may require additional time to dry if no other steps are taken to speed the process, professional mechanics can easily avoid this problem simply by altering their sequence of actions

when performing brake maintenance or repair on automobiles. Also, water-based specialty products and industrial cleaning solutions are currently being used in the market which have not resulted in the adverse effects suggested by the commenter. Finally, staff is not aware of any credible data which would support the commenter's contention that water-based formulations could leave surfactant or other residues which might impede efficient operation of the brake system.

140. Comment: The discussion on brake cleaners in the TSD fails to appreciate the challenge faced by the industry to develop technologically and commercially feasible brake cleaners without the use of 1,1,1-trichloroethane. Automotive service personnel cannot be expected to purchase and use commercial brake cleaner products that do not adequately clean all of the necessary brake parts, take too long to dry, leave residues that could result in losses in brake performance, or could contaminate critical brake fluids with high-volatility materials. Commercial solvents are readily available to professional automotive repair personnel that could be substituted for commercially-formulated brake cleaners. The staff conversations with Midas Muffler and Brake Shop personnel cannot be considered to be representative of all automotive service facilities, since chain centers such as Midas specialize in simply replacing, not rebuilding and repairing, brake systems. (CSMA)

Agency Response: As the production of 1,1,1-trichloroethane is phased-out under the Montreal Protocol Agreement, ARB staff recognizes the challenges that will be faced by manufacturers of all products that currently contain 1,1,1-trichloroethane. The issues and concerns pertaining to this phase-out are addressed in detail in chapter VII of the TSD. Furthermore, the standards have been established at levels that reflect current or developing low-VOC technologies. The regulation also allows the continual exemption of 1,1,1-trichloroethane in existing products, thus allowing time for manufacturers to substitute low-VOC replacements for 1,1,1-trichloroethane. Finally, the regulations were modified to allow manufacturers an additional two years (until January 1, 1997) to comply with

the 50 percent VOC standard. This additional time should allow manufacturers further flexibility to explore a variety of reformulation options.

Regarding the use of reformulated products by automotive service personnel, pages V.16 and V.17 of the TSD contains a discussion on possible modifications that can be made of professional mechanics to facilitate the use of reformulated products. Manufacturers of complying products which are water-based and do not make use of exempt compounds (i.e., 1,1,1-trichloroethane) have indicated that their products provide similar if not equal cleaning effect. The ARB staff is unaware of any testing that validates the presence of the residues to which the commenter eludes. Furthermore, current manufacturers of water-based products have not reported any adverse effects from the use of their products; this indicates that residues, if present, do not introduce problems with brake performance. As discussed in the response to Comment 132, there is no reason to expect brake fluid contamination to occur provided that proper maintenance procedures are followed.

The use of commercial solvents by professional mechanics is highly unlikely given the liability and safety hazards associated with their use and the continued availability of efficacious complying products. Also, according to the Society of Automotive Engineers, the use of gasoline, kerosene, petroleum products, chlorinated, or other type solvents to clean any brake system parts should never be used, because of potential deterioration of brake components that come into contact with solvents.

Finally, the conversations and visits that staff conducted with various establishments not only included "Midas Muffler & Brakes," but also Regional Transit, Pacific Gas & Electric Utility Company, Local Maintenance Shops, Industrial Friction, Raybestos, Friction Inc., Bendix, Department of Transportation (DOT), Case Consulting Laboratories, U.S. Sales Inc., and Ammco Tools. All of these companies are actively involved with one or more

of the following: maintenance, repair, testing, research, distribution, sales, safety, and rebuilding of automotive brake components.

141. Comment: Under "Product Category Issues" in the Staff Report, we believe that it is unlikely that 20 percent of the "exempt solvent (i.e. Table B compounds) in brake cleaners is methylene chloride, as is stated on page 55. (CSMA)

Agency Response: The commenter may be correct. The numbers provided in this section of the Staff Report are estimates based on the best available information at the time. These estimates were not based on specific product information supplied by the 1991 consumer products survey.

Carburetor-Choke Cleaners

142. Comment: At a 50 percent VOC standard, carburetor-choke cleaners will perform less effectively than 100 percent VOC products resulting in an excess of at least two times the amount of the product used. (AP, BP, CI, HI, MEMA)

Agency Response: In response to industry concerns about the efficacy of 50 percent products, the Board determined that it was appropriate to delete the January 1, 1997, 50 percent VOC standard. The 75 percent VOC standard for carburetor-choke cleaners, effective January 1, 1995, was retained by the Board. The ARB believes that effective products can be reformulated to meet this standard, which was supported by the CSMA Automotive Task Force (September 4, 1991 letter with attachments to Peggy Vanicek from Robert Graham of Sprayon Products). Furthermore, there is no indication that consumers are using more of the lower VOC products to clean their carburetors. Carburetor-choke cleaners are formulated to remove carbon, varnish, gum, dirt and other contaminants which may cause rough idling, hard starting, stalling and wasted fuel to help maximize carburetor efficiency. The 1991 ARB VOC survey shows that there are 12 aerosol products which already meet the 75 percent standard. The lower VOC products

perform at least as well as high-VOC products in unsticking and cleaning those components that affect carburetor efficiency and engine performance.

143. Comment: The ARB's data related to VOCs liberated for the carburetor cleaner category is not a true representation since much of the product is sprayed into the carburetor of a running vehicle. Also, there is currently no accepted test method for determining the amount of "true" VOCs contributed since the "VOCs" are consumed in the engine. Without this vital piece of statistical information, there is absolutely no evidence that a 50 percent VOC system will give ARB their desired results. (AP, BP, CSMA, CI)

Agency Response: As noted in the response to the previous comment, the 50 percent VOC standard was deleted. With regard to the commenters' additional points, ARB staff agrees that without testing it is difficult to determine the exact amount of VOCs entering the atmosphere or into the engine. However, there are a number of reasons to conclude that no significant quantity of VOCs will simply "disappear" into the engine. First of all, much of the cleaner is sprayed onto external linkages, valves and springs of the carburetor. VOCs in this portion of the product will enter the ambient air as the product evaporates. For the product that is sprayed into the interior of the carburetor, it is worth pointing out that the directions on some carburetor cleaners state that the engine should not be running when the product is applied. Therefore, evaporation of the product will have time to occur before the engine is turned on. Evaporation rates for carburetor-choke cleaners are typically high because of the high proportion of high vapor pressure VOCs that are used in these products.

Furthermore, even for those products that are applied to the interior of the carburetor while the engine is running, "out of sight" is not necessarily "out of the air". Automobile engines are optimized to operate at pre-determined fuel-to-air mix ratios. Certain products that contain VOCs, such as carburetor-choke cleaners, disturb this optimized fuel-to-air mixture when introduced into the carburetor. The additional VOCs from these products cause the fuel-to-air mix ratio to become higher in fuel, thereby

resulting in a temporarily "rich" combustion. This, in turn, may result in increased levels of unburned hydrocarbons in the exhaust. Thus, although some of the VOCs from carburetor-choke cleaners are indeed introduced into the combustion chamber, their disturbance of the optimized fuel-to-air mixture does not necessarily guarantee that the additional VOCs will be combusted.

For the reasons stated above, the ARB does not believe that a significant proportion of VOCs will be "consumed" by the engine and disappear. However, the standards are appropriate even if a greater proportion of VOCs may "disappear" than the ARB has estimated. The effect of a slightly inaccurate estimate is only that the emission reductions claimed from this product category may be less than the ARB originally estimated. Significant reductions will still occur; however, and as explained in the staff report, it is important to regulate even smaller sources of air pollution due to the serious air quality problems in California.

144. Comment: Page V.22 of the ARB Technical Support Document (October 1991), references new valve technology as referenced in the Handbook of Aerosol Technology, 2nd Edition (1987) by Dr. Paul Sanders. He passed away shortly after publication of the 1st edition and much of the information was never updated for the 2nd edition. The reference cites technological improvements made 14-16 years ago and has no practical application to the current issues of carburetor cleaners since a finer spray pattern is not desirable. (AP)

Agency Response: The reference cited by the commenter has been taken out of context. The paragraph containing this reference discusses the possible substitution of hydrocarbon propellants with compressed gases in order to reduce the VOC content of the product. While a coarse spray has resulted when compressed gases were used as propellants in the past, the reference was intended to point out that better atomization of compressed gases can be obtained with improved valve systems. The reference was not

intended to suggest that a finer spray pattern is necessary or desirable for carburetor cleaners which contain hydrocarbon propellants.

145. Comment: The ARB is urged not to reduce the VOC levels in carburetor cleaners from 100 percent at this time in order to develop more complete data on the overall impact of these products on California's air quality.
(ACMC)

Agency Response: It is not necessary to develop more complete data. As described in Chapter III of the TSD, it has long been recognized that most areas in California are nonattainment for both the federal and state ozone and PM-10 ambient air quality standards. To attain these standards and protect public health, it is necessary to reduce emissions from all sources of ozone and PM-10 precursors, including consumer products. Although emissions from each individual product category may seem small, in the aggregate the number becomes large. Based on the ARB 1991 VOC survey, the emissions from carburetor-choke cleaners alone were estimated to be 3,300 lbs/day. The VOC survey also indicated that there are at least 12 complying aerosol carburetor-choke cleaners which meet the 75 percent VOC standard approved by the Board. The availability and use of these products demonstrates that the technology exists to reduce emissions from this product category.

146. Comment: At the 50 percent VOC level for carburetor cleaners, professionals, semi-professionals and do-it-yourselfers will circumvent these "poor" substitutes to purchase materials they know will already work, which will defeat the ARB's goals and damage the manufacturer's reputation.
(BP, HI)

Agency Response: As discussed in the responses to the previous comments, the 50 percent VOC standard has been deleted. At the proposed 75 percent standard, there is no indication that professionals, semi-professionals and do-it-yourselfers will purchase other materials to any significant degree, especially when there are complying products available.

As explained in the response to Comment 142, the 75 percent VOC products perform an adequate job in cleaning and unsticking the important components that affect carburetor efficiency. The use of these products will also help meet ARB's goals for emissions reductions in this category. ARB staff also believes that as professionals and non-professionals become more aware of health, safety and environmental concerns and the performance of complying products, they will be unlikely to resort to more hazardous or environmentally damaging alternatives.

147. Comment: At a 100 percent VOC level, carburetor cleaners require less raw materials, drastically improves carburetor performance, contributes little VOC in and of themselves, promotes strengthened vehicle owner-operator confidence and reduces waste. (AP, BP, GEC, CI)

Agency Response: ARB staff does not agree that a 100 percent VOC product will necessarily have the advantages listed by the commenter. Carburetor-choke cleaners with 100 percent VOC obviously may require more raw materials than a 75 percent VOC product since more solvents are needed to produce a higher VOC content. Also, as explained in the response to Comment 142, 100 percent VOC products are not needed to clean and unstick the components that affect carburetor efficiency. Lower VOC products can also accomplish the same job with lower emissions since linkages, valves, springs and a few other parts of the carburetor are the necessary areas that must be cleaned. Adequately informing owner-operators of these important factors should also strengthen their confidence in using lower VOC products.

148. Comment: Professional mechanics and heavy do-it-yourselfers will not be satisfied with a diluted low-VOC product. Satisfactory technology does not exist and is not likely to exist in the foreseeable future. As a result, 100 percent VOC solvents that are available from other sources will likely be used. (CI, FB, MEMA)

Agency Response: ARB staff disagrees that professional mechanics and do-it-yourselfers will use 100 percent VOC solvents in place of lower VOC

carburetor-choke cleaners. As discussed in the responses to the previous comments, there are already complying commercial products which can meet a 75 percent VOC level. Since these low-VOC products perform adequately in cleaning carburetors, we do not believe that individuals will need to resort to the use of 100 percent VOC solvents.

149. Comment: As an alternative, the regulations allow the use of methylene chloride, which is an excellent cleaner, but identified by the ARB as a toxic air contaminant. Using such a chemical meets the regulation to lower VOCs, but certainly not the spirit of the regulation. (CI, FB, HI, MEMA)

Agency Response: Methylene chloride is exempt from the definition of "VOC" because it does not react significantly in the atmosphere to form ozone. While the regulation does not prohibit the use of methylene chloride because of its negligible photoreactivity, it is clearly stated in the Staff Report (on pages 52 and 53) that staff does not encourage manufacturers to use methylene chloride since restrictions may be placed on this compound in the future under the Board's toxic air contaminant control process. Furthermore, it is not necessary for manufacturers to use methylene chloride to formulate a product that meets the 75 percent standard. Pages V.21 through V.22 of the Technical Support Document discuss some alternatives for reformulating products to meet the standards, such as replacing solvent-based systems with water-based systems or the development of water-dimethylether systems. According to the ARB 1991 VOC survey, at least 5 of the 12 currently complying aerosol products are water emulsions that do not use methylene chloride.

150. Comment: It is requested that the effective date of the standard be moved further back and/or the proposed 75 percent VOC limit be raised to 90 percent or 100 percent so that industry can work with the ARB as technology catches up. The ARB can certainly move the date forward if developments are sooner than what industry expected. (CI)

Agency Response: It is not necessary to delay the effective date of the standard or raise the VOC limit to 90 or 100 percent when there are currently available carburetor-choke cleaners that comply with the 75 percent VOC level. The ARB 1991 VOC survey shows that there are currently 12 complying aerosol products, demonstrating that the technology is achievable. However, to address concerns from industry, in Resolution 92-1 the Board directed ARB staff to monitor the progress being made in meeting the regulatory requirements and to propose any future modifications that may be appropriate.

151. Comment: The amount of VOC liberated from a carburetor cleaner which contains 100 percent VOC is significantly less than the VOC emissions from a dirty vehicle. (CSMA, MEMA, CI)

Agency Response: It is not relevant to compare the VOC emissions from a can of carburetor-choke cleaner with the emissions from a vehicle with a "dirty" carburetor. The relevant question is whether VOC emissions from carburetor-choke cleaners can be lowered, while still allowing a product to be produced which provides adequate cleaning for vehicle carburetors. As explained in the TSD and the previous responses, the ARB believes that a 75 percent VOC standard will allow both adequate carburetor cleaning and less VOC emissions from this product category.

152. Comment: After reviewing numerous water containing formulations now available in the marketplace, no formulation or chemistry breakthrough has been seen which yields solvent comparable cleaning performance. Solvent-based carburetor deposits cannot be adequately removed with water. (GEC, MEMA, GEC, HI, RSC)

Agency Response: ARB staff agrees that current water-based formulations of carburetor-choke cleaners do not provide identical aesthetic cleaning performance to that of solvent-based formulations. However, the development of VOC standards is not predicated on absolute cleaning performance based on appearance, but on reducing VOC emissions from these

products while still maintaining their functional cleaning characteristics. The VOC standards are set such that there are complying products which can adequately unstick and clean those parts of a carburetor that affect efficiency. Water-based products can provide adequate cleaning ability to keep the functional parts of a carburetor clean and working efficiently.

153. Comment: A 100 percent VOC formula offers California the best chance for reducing its air pollution. Water-based formulas can be produced to meet ARB standards, but it will hurt more than help the ARB's goals. Twice as many water-based products will be sold, four times as much money made, and California will have increased auto emissions and pollution. (FB, TCC, MEMA)

Agency Response: As discussed in previous comments, there is no indication that consumers are using twice as much of the lower VOC products to clean their carburetors, or that increased automotive emissions will result from the use of lower VOC products (see the responses to Comments 142, 151 and 152).

154. Comment: A 75 percent VOC carburetor cleaner was tested against a 100 percent VOC product. To get the same performance level of cleanliness, 2-3 times as much of the 75 percent product had to be used, emitting just as many VOCs of what might get into the atmosphere. (CI)

Agency Response: ARB staff agrees that using currently formulated 75 percent VOC products may not result in a carburetor that superficially appears to be as clean as a carburetor cleaned with a 100 percent VOC product. However, the aesthetic appearance of a "clean" carburetor is not as important as maintaining its operating efficiency. A 75 percent VOC product will perform quite adequately to unstick and clean the components of the carburetor that affect its operational efficiency. (Please refer to the response to Comment 142). In addition, manufacturers who believe that a superficially clean appearance is desirable have been given 3 years from the date of the Board hearing to work on reformulating their products, or

changing the product directions for use, in order to promote a more aesthetic appearance.

155. Comment: The use of fuel-injected delivery systems will make obsolete the use of carburetor-choke cleaners as pre-fuel-injected cars are scrapped. Market forces with automotive fuel technology will reduce future sales of this product type, directly impacting total VOC emissions anticipated from this product category. (GEC, CSMA, HI, TCC)

Agency Response: ARB staff agrees that the number of old carbureted cars will decrease over time; however, there is no assurance as to how long this process will take and how significant the turnover will be each year. Besides the market forces from the automotive fuel technology field, additional factors such as the economy and consumer spending ability will influence how many carbureted vehicles will be replaced annually. The commenter should also recognize that carburetor-choke cleaners will continue to be used to clean millions of other types of carbureted equipment such as lawn mowers, leaf blowers, generators, chain saws, etc.

156. Comment: Radiator Specialty Company reluctantly supports the 75 percent VOC limit on carburetor cleaners; however, the effective date of January 1, 1995, is not realistic. They request that the effective date be extended at least to January 1, 1997. (RSC)

Agency Response: It is not necessary to extend the effective date of the 75 percent VOC limit from 1/1/95 to 1/1/97 when there are commercially available products that currently comply. The 1/1/95 deadline is a realistic date that takes into consideration the presence of the complying products as well as time for companies to reformulate those products that currently do not comply. Postponing the effective date of the standard would simply delay VOC emission reductions which could otherwise occur sooner.

157. Comment: Carburetor-choke cleaners maintain the efficient performance of automotive engines, and thereby serve to lower automotive VOC emissions. In addition, much of the VOC content of these products are never emitted; industry experts estimate that approximately one half of the VOCs in carburetor-choke cleaners is drawn in through the carburetor and combusted. Data also appears to indicate that the use of water in a carburetor cleaner would not only adversely affect product performance, but could also result in damage to the catalytic converters in some older cars, which could also adversely affect automotive emissions. (CSMA, MEMA)

Agency Response: ARB staff does not agree that about half of the VOC emissions from carburetor-choke cleaners is drawn into the engine and combusted. This issue is thoroughly discussed in the response to Comment 143. Efficient performance of automobile engines is also discussed in the response to Comment 151. Finally, there is no credible data to indicate that the use of water in a carburetor-choke cleaner would adversely affect product performance or damage the catalytic converters in older cars. The performance of water-based products has been discussed in the responses to Comments 142 and 152. Regarding the effect of water-based carburetor-choke cleaners on catalytic converters, this is not a credible argument. It is well known that water is one of the main by-products of combustion, and catalytic converter systems are designed to work when there is water in the vehicle's exhaust.

158. Comment: We urge the ARB to defer carburetor-choke cleaners until our industry's research and development efforts can develop safe and effective products without the use of 1,1,1-trichloroethane. Reducing the VOC content would not necessarily lower VOC emissions because the efficacy is seriously impaired, requiring a much greater volume of product be used. (CSMA, HI)

Agency Response: It is not necessary to defer the effective date of the standard for carburetor-choke cleaners because commercially and technologically feasible products currently exist and are being sold in

California. Of the 12 currently complying products, 11 do not contain 1,1,1-trichloroethane. As discussed in the response to Comment 142, lower VOC products perform at least as well as high-VOC products in unsticking and cleaning those components that are important in affecting carburetor efficiency.

Charcoal Lighter Material

159. Comment: The ARB has accepted the South Coast Air Quality Management District (SCAQMD) numbers that only 0.02 pounds of propane, on average, are emitted during the barbecue lighting process. With 2 million grills in California, if one assumes 30 uses a year, there are $2,000,000 \times .02 \times 30 = 1,200,000$ pounds or 600 tons of VOC per year. Emission reductions can be achieved for this category simply by providing for instant ignition. Yet, it is hard to understand why the ARB is targeting VOC emissions from much smaller sources such as aerosol cooking sprays and similar categories when the proposed standards allow substantial emissions to continue from charcoal lighter materials. (CP)

Agency Response: The ARB staff did not state that 0.02 pound of propane is emitted during the barbecue lighting process; it was merely stated that 0.020 pound of VOC per start is the level of emissions at which the South Coast AQMD (SCAQMD) certifies charcoal lighter material as being in compliance with their Rule 1174. Many of the products that comply with Rule 1174, including propane gas, do so at levels significantly below 0.020 pounds VOC per start. In fact, data generated by the SCAQMD staff during the development of Rule 1174 indicate that propane-ignited charcoal emissions, at an average of approximately 0.008 pounds of VOC per start, are among the lowest emissions from the currently available ignition methods.

Regarding the commenter's second point, it is correct that, on a total mass basis, more emissions would be allowed from charcoal lighter materials which comply with the standard of 0.020 pound VOC per start than would be allowed from aerosol cooking sprays which comply with the 18 percent VOC

limit (approximately 2.0 tons VOC per day for charcoal lighter materials versus 0.50 ton per day for aerosol cooking sprays). By extension, the commenter appears to be suggesting that, by simply lowering the standard for categories such as charcoal lighter materials, more emission reductions could be achieved without implementing additional standards on products such as aerosol cooking sprays.

In response to this second point, it is important to note that each VOC standard specified in the regulation has been set at a level which reflects the technological and commercial feasibility for achieving emission reductions from each product category. The Board has endeavored to set standards which will not result in a ban on any category of consumer products. The standards proposed for all product categories represent this balance between the need to maintain the existence of the product categories with the need for achieving emission reductions. Thus, in the case of charcoal lighter materials, it would be inappropriate to lower the VOC standard of 0.020 lb VOC per start at this time since this standard already represents what staff believes to be the currently feasible level of reductions available from this category, without eliminating these products. Similarly, the standard of 18 percent VOC for aerosol cooking sprays represents the technologies that staff believes at this time to be available for achieving reductions from this category without eliminating aerosol cooking sprays from the market.

160. Comment: The charcoal lighter material limit should be revised to 0.02 to be consistent with South Coast Air Quality Management District (SCAQMD) Rule 1174. According to the ARB staff, the current 0.020 limit was proposed with the intent of being equivalent to SCAQMD Rule 1174 and based on SCAQMD staff's interpretation of the limit as 0.020. The commenter disagrees with SCAQMD staff's interpretation of the rule because the rule clearly sets a limit of 0.02 pounds of VOC per start. The statewide regulation does not need to be stricter than the SCAQMD rule.

For lighter materials certified with emissions of 0.020, the concern is that the products are right at the limit and it's uncomfortably tight to be that close to the limit, especially since the test method for emissions has such a large variation. It is not what the SCAQMD staff and Board intended when they passed their rule. (CC)

Agency Response: SCAQMD staff members testified at the Board hearing that they interpret and are enforcing their Rule 1174 as requiring a level of no more than 0.020 pound VOC per start before products may be certified (see Comment 161). The SCAQMD staff also published a list of 11 products that had been certified by the SCAQMD staff prior to the Board hearing. These products have certified emission levels ranging from 0.008 to 0.020. The proposed ARB regulation is therefore consistent with the SCAQMD's current implementation policy, in that a certification level of 0.020 pound per VOC per start is specified. Perhaps more importantly, SCAQMD's experience clearly demonstrates that charcoal lighter material can be produced which meets the 0.020 standard. Since a 0.020 standard is technologically and commercially feasible, it is appropriate for the ARB to set this standard regardless of how one may interpret the requirements of Rule 1174.

161. Comment: The language in South Coast Air Quality Management District (SCAQMD) Rule 1174 states a limit of 0.02 per start. But for compliance testing and product certification purposes, it is implemented at 0.020 per start. The SCAQMD believes that implementing at 0.020 per start is consistent with the Board's intent in enacting the rule. Therefore, the SCAQMD recommends the approval of 0.020 pounds per start so that there can be a uniform, consistent statewide regulation, which will enhance the effectiveness of their rule. (SCAQMD)

Agency Response: The ARB agrees with the commenter and has established the certification level at 0.020 pound VOC per start.

162. Comment: Certification is the appropriate regulatory approach for charcoal lighter materials because the test method is expensive and the test method variability is high. The following change is recommended for section 94509(h):

"Upon the effective date...lighter material unless the VOC emissions resulting from the ignition of charcoal with the charcoal lighter material are less than or equal to 0.02 pound of VOC per start, and unless the charcoal lighter material has received prior written certification by the Executive Officer pursuant to this section."

(CC)

Agency Response: ARB staff agrees that certification is an appropriate approach for regulating charcoal lighter materials. To address the commenter's concern, the language cited by the commenter has been deleted in its entirety. The commenter's concern is adequately addressed by new language in section 94509(h)(1) and (2) which requires certification to be obtained for all affected charcoal lighter material prior to being sold in California. Included in the certification requirements is the requirement to demonstrate that the emissions from the use of the lighting material with charcoal would result in no more than 0.020 pound VOC per start. Once certification has been issued for a particular product formulation, the certified product may legally be sold in California, without the necessity for further product testing, as long as the product meets the formulation criteria and other conditions specified in the applicable certification order.

163. Comment: It is recommended that section 94509(h)(1)(B) be changed as follows:

"...The usage directions shall accurately reflect the quantity of charcoal lighter material and per pound of charcoal to be used in the SCAQMD rule 1174 Testing Protocol for that product, unless the charcoal lighter material is already incorporated in the charcoal.

Since consumer use of charcoal varies with the type of grill and amount of food cooked, the quantity of charcoal lighter material to use per pound of charcoal in the usage directions will be more meaningful to consumers than the amount of lighter material and charcoal used in the certification testing. These changes are consistent with the SCAQMD labeling requirements. (CC)

Agency Response: We agree with this comment. Section 94509(h)(2)(C) now includes language specifying that the amount of charcoal lighter material per pound of charcoal used is to be specified on the label, unless the material is already incorporated into the charcoal (e.g., instant light charcoal) or is intended to be used in fixed quantities (e.g., paraffin cubes). This modification will address the concerns raised by the commenter.

164. Comment: The proposed standard for charcoal lighter materials may be more stringent than SCAQMD Rule 1174 because of the high variability of the emission test method. (CC)

Agency Response: We do not agree. As stated in the responses for Comments 160 and 161, the statewide regulation for charcoal lighter material is consistent with the regulatory and enforcement policies of the South Coast AQMD and their test method for Rule 1174 (VOC Emissions from the Ignition of Barbecue Charcoal). The SCAQMD test method for charcoal lighter material has been incorporated into the ARB consumer products regulation by reference (see section 94515(d)). Since both regulations implement and enforce the same emissions level using the same test method, the statewide regulation is not more stringent than the SCAQMD rule.

165. Comment: In the Revocation of Certification, section 94509(h)(4), the ARB intends to revoke or modify certification only if testing with the SCAQMD protocol shows that emissions are significantly greater than the emission limit (0.020 pounds per start). Normally a test result would be considered significantly greater than the limit if it exceeded the limit by

more than the precision specified in the test protocol, but in this case, the test protocol does not specify the precision and an alternative approach needs to be used to determine if the test result is significantly greater than the limit.

The Revocation of Certification section says "...greater than 0.020 pound of VOC per start, as determined by the SCAQMD Rule 1174 Testing Protocol and the statistical analysis procedures contained therein...". The statistical analysis section of the SCAQMD protocol is a t-test for excluding statistical outliers. This same t-test would be used to determine if the sample is significantly greater than the emissions limit. Even if the average emissions exceeded the limit, the sample would not be significantly greater than the limit unless the "Lower Acceptable Limit" is greater than 0.020 pound of VOC per start. (CC)

Agency Response: It appears that the commenter may be confusing the concept of revoking a certification due to erroneous certification data, and a violation of the conditions of a certification order. Under the proposed certification provisions, a charcoal lighter material product could legally be sold as long as it is currently complying with the conditions specified in the Executive Order that serves as the certification document. Violations would occur only if the product is found to be exceeding or otherwise not meeting these Executive Order conditions (e.g., a violation would occur if a particular batch of a product was improperly produced and does not fall within the formulation range allowed by the Executive Order). However, it is conceivable that, after the issuance of a certification, the Executive Officer may discover that the original certification testing was improperly performed and the resulting testing data does not really show that a particular formulation meets the 0.020 pound per start certification criteria. In such a case, the Revocation of Certification provisions (section 94509(h)(4)) would provide the Executive Officer with the mechanism to revoke the certification, or modify its conditions, to adequately ensure that the emissions from the use of the lighter material will not exceed the limit of 0.020 pound VOC per start. Regarding the commenter's observations

on the Rule 1174 t-test, the commenter is correct that, for certification testing, the protocol specifies that the t-test is to be used to determine if the sample is significantly greater than the emissions limit.

Disinfectants

The original ARB staff proposal specified a 60 percent VOC standard for aerosol disinfectants. However, at the January 9, 1992 Board hearing ARB staff recommended that the standard for aerosol disinfectants be deleted from the proposed regulations. This recommendation was based on the conclusions contained in a November 20, 1991 memorandum and analysis from the Department of Health Services (DHS). The DHS analysis was written in response to a set of technical questions about disinfectants which had been compiled by ARB staff as part of the regulatory development process. Both the ARB technical questions and the DHS analysis are included in the record for this rulemaking action.

Although the DHS analysis concluded that an adverse effect on public health would not occur if intermediate-level aerosol disinfectants were completely eliminated, it was also concluded that additional research is needed to demonstrate whether a maximum ethanol content of 60 percent would be effective as a disinfectant. The DHS staff therefore recommended that additional study be performed before specific VOC standards for aerosol disinfectants were adopted. Since ARB staff had worked closely with the DHS in evaluating the regulation of aerosol disinfectants, staff determined that it was appropriate to follow the DHS recommendation for this product category. The Board agreed that postponement was appropriate and approved the deletion of the standard from the proposed regulations. The Board also directed staff in Resolution 92-1 to work with DHS and other appropriate parties to undertake an independent study on marketable disinfectant formulations, with the goal of determining an appropriate VOC standard that will provide for efficacious disinfectants and will achieve emission reductions.

On the day of the January 9, 1992 Board hearing, L&F Products Group (L&F; formerly known as Lehn and Fink Products) submitted to the Board a document entitled "L&F Products Comments on the ARB Phase II Consumer Product Regulations". This document contained comments that were directed at the originally proposed 60 percent VOC standard. In essence, L&F commented that no VOC standard for aerosol disinfectants should be adopted by the Board, for various reasons specified in the submitted material. The comments were presented in the form of an Executive Summary entitled "Public Health Impacts of Limiting the Use of Disinfectant Active Ingredients Such As Ethanol" dated November 1, 1991, and were supported by background material presented in five appendices.

L&F's comments contained in the Executive Summary are summarized and responded to below. Also summarized below are additional comments on disinfectants that were made by other interested persons. The appendices to L&F's comments are not separately summarized below, since these documents merely provide background supporting material or respond to issues discussed by the DHS in their November 20, 1991 memorandum. Similarly, the contents of the DHS memorandum are also not summarized below, since this memorandum was drafted in response to an information request made by ARB staff, and the technical analyses contained in the memorandum were not intended for submission to the Board as formal comments directed at the proposed action, or the procedures followed by the Board in proposing or adopting the proposed action.

166. Comment: Ethanol is both a VOC and a well known disinfectant active ingredient in hard-surface disinfectant sprays. An 80 percent concentration, as formulated in Lysol Disinfectant Spray, appears to be an optimal concentration based on available data. (L&F)

167. Comment: Environmental surfaces are known to transmit infectious disease. Disinfection of such surfaces can help reduce the incidence of disease by reducing the number of infectious organisms in the environment. Disinfection is a universally recognized low-risk intervention strategy with

potentially high benefit and an accepted element of good medical practice. Absent vaccines and safe and effective chemotherapeutic agents, which are lacking today against viral pathogens, chemical disinfection is often relied on heavily. Handwashing is not enough. (L&F)

168. Comment: If effective ethanol-based aerosol disinfectants were not available, under certain circumstances infection control could be compromised due to the necessity of preparing a suitable solution of household bleach to disinfect contaminated surfaces. For example, employees of day care centers might not hesitate to use a spray disinfectant that was readily available and easy to use, but might hesitate to prepare a bleach solution on a routine basis due to the extra work involved and inconvenience of use. (L&F, DHS)

169. Comment: In response to the Arab oil crisis of the 1970s, the government mandated lower temperatures for hot water heaters in public buildings. Legionella, which causes Legionnaire's disease, thrived at the lowered temperature. Aerosols generated from these aquatic environments subsequently provided a major source of the disease. As this example illustrates, government regulatory action can have unintended, unanticipated and potentially devastating consequences. No regulatory action which has the effect of diminishing the size or contours of our "safety net" against the spread of infectious disease should be taken. The only exception to this rule would be the case where there is an immediate overriding public health concern. This is clearly not the case here in view of ARB's exemption from regulation of equivalent or greater amounts of ethanol in other consumer products such as existing perfumes and antiperspirants and deodorants. (L&F)

170. Comment: Ethanol from Lysol Disinfectant Spray (LDS) represents only about 0.09 percent of the total emissions of reactive organic gases to the ambient air in California each year. Since LDS has important uses in preventing the spread of infectious disease, and since the impact on air pollution of the use of LDS is trivial, it would appear that the elimination

of LDS would have no detectable effect in reducing air pollution, but may lead to unnecessary spread of communicable disease. Lysol Spray is a useful product whose environmental impact is truly de minimis. (L&F)

171. Comment: Alternative non-VOC disinfectant actives which are equally safe and effective for the purposes for which ethanol-based disinfectants are used do not exist. Halogens, such as bleach, phenols and gluteraldehydes, are toxic, irritating and produce other health issues such that their use as replacements for ethanol for this purpose should not be encouraged. (L&F)

172. Comment: A VOC content standard of 60 percent for aerosol disinfectants would serve to eliminate many highly effective disinfectant products on which our health care system and consumers depend. We continue to urge, in view of the important health benefits of effective disinfection, that disinfectant products be excluded from this rulemaking. (CSMA)

173. Comment: The section on disinfectants continues to demonstrate a failure to understand the complex scientific considerations involved in assuring that effective hard surface disinfectants are available for the diversity of uses these products must serve in protecting the public health. There is no evidence that a 60 percent VOC standard (even as equated by staff to a 60 percent ethanol standard) will provide the efficacy afforded by the top current products. The proposed regulation cannot therefore be viewed as technologically or commercially feasible. (CSMA)

174. Comment: The results of the ARB's Hard-Surface Disinfectant Usage Survey are hardly indicative that aerosols are not a needed form; the usage survey appears to simply confirm that aerosol use and liquid use occur in the same proportion as the products are manufactured and sold. (CSMA)

175. Comment: The discussion regarding disinfectants in the Staff Report (pages 5-6) provides clear evidence that ARB staff intends to promulgate a final consumer product standard, and then study whether that standard can be

met without significant adverse effects on the public health. We continue to believe that the California Clean Air Act requires the Board to make assessments of technological and commercial feasibility before the regulations are adopted, not after. (CSMA)

176. Comment: The ARB staff report (October 1991) sets forth arguments that the proposed VOC limits for aerosol disinfectants will provide adequate disinfection against certain classes of viruses. While this is probably true, it would be reassuring to see real experimental data. The staff report also indicated that there will be continuing collaboration between the ARB and the Department of Health Services (DHS) on this issue. Such interagency cooperation is particularly appropriate in this instance, since DHS staff are recognized nationally for their expertise in the control of communicable diseases. (OEHHA)

177. Comment: The summary of complying products (List 1) and total products (List 2) in the appendix to the TSD include a number of disinfectant products that should not be included in this category, such as dual-purpose air freshener/disinfectants, air sanitizers, and germicidal cleaners. (CSMA)

Agency Response: In Comments 166-177, the commenters raise a number of issues which may require additional study to fully address. As explained above, the Board has deleted the 60 percent standard to allow further research and analysis of these issues. If the ARB proposes to regulate disinfectants as part of some future rulemaking action, the commenter's views will be considered at that time.

178. Comment: The definition of "Disinfectants" should be revised to limit its application strictly to products that are of regulatory interest. The proposed definition defines the category with the broadest of terms and then states specific exemptions. This approach leaves open the possibility of unintended products being covered by the regulation. The definition should

be restructured to explicitly state the types of disinfectant that are to be regulated. (SDA)

Agency Response: The commenter has not cited any "unintended products" that might inappropriately be subject to regulatory standards, and we are not aware of any. In the existing ARB consumer products regulation, the only regulated product category which requires a definition for the term "disinfectant" is the "dual-purpose air freshener/disinfectant aerosols" category. The definition for this product category incorporates the terms "aerosol product", "disinfectant" and "air freshener". Any product which is subject to the "dual-purpose air freshener/disinfectant aerosol" VOC standard would therefore have to meet the criteria set forth in all three of these definitions. The possibility of unintended products being covered by the regulation under the "dual-purpose air freshener/disinfectant aerosol" standard is virtually nonexistent since these three definitions in combination provide very little, if any, room for misinterpretation.

179. Comment: While conclusive evidence of the medical impact of disinfectants on rates of disease is not available, there are extensive data from which such impacts and associated economic costs can be estimated. The analysis conducted for L&F Products and shown in Appendix IV of L&F's Executive Summary shows an economic benefit of current usage of an 80 percent ethanol disinfectant spray (assuming a 25 percent reduction in cases of rotavirus, Hepatitis A and rhinovirus among current users) in a range of \$33 - \$58 million dollars annually. (L&F)

Agency Response: We believe that the analysis cited by the commenter is seriously flawed. This analysis provides estimated economic cost impacts from projected additional illnesses due to the promulgation of an aerosol disinfectant standard. However, it is unclear how these costs can be estimated with any reasonable degree of confidence, given that the commenter and the referenced analysis both state that there is currently no conclusive evidence of any medical impact on rates of disease from the use of surface disinfectants. This is not to say that surface disinfectants have no impact

on rates of disease; however, the data simply do not exist to quantify such impacts. Given this lack of supportable data and an established causal relationship, it is inappropriate to attempt to estimate "potential costs" due to "projected additional illnesses" caused by a lower VOC product's "expected reduction in efficacy". Any attempt to quantify "potential costs" in the manner cited by the commenter is therefore completely speculative.

Dusting Aids

180. Comment: The 100 percent propellant products listed as dusting aids in Summary #2 of the appendix to the TSD are undoubtedly compressed or liquefied gas dust removers, not dusting aids. Some of these dust removers can be seen in List 1 of complying aerosol dusting aids and in List 2. (CSMA)

Agency Response: The commenter is correct. The originally proposed definition of "dusting aid" included 100 percent propellant dust removers, and that is why these products were included in the data summaries in the Appendices to the Phase II Technical Support Document (TSD). After the TSD was completed, the definition of "dusting aids" was modified to exclude 100 percent propellant products that are used in electronic or other specialty areas. This modification was made because manufacturers of 100 percent propellant products indicated that these products have a unique function, and use formulations very different from other products in the "dusting aid" category. The information on these products presented in the Appendices to the TSD does not affect the technological and commercial feasibility of the standards for other types of dusting aids that do not use 100 percent propellant.

Glass Cleaners

L&F Products submitted a January 1, 1992 comment letter which contained a number of comments regarding glass cleaners and the proposed regulatory definition for "All other forms" [see section 94508(a)(5)].

Attached to the 1/1/92 comment letter were three comment letters that had previously been submitted to the Board on 10/11/90, 12/28/90, and 5/24/91. The 10/11/90 and 12/28/90 comment letters are part of the rulemaking record for the 1991 Phase I consumer products regulation, and the comments contained in these letters have been summarized and responded to in the Final Statement of Reasons for the Phase I consumer products regulation. (The Phase I Final Statement is attached as Appendix A). The agency responses to the 10/11/90 and 12/28/90 comments that are relevant to this Phase II rulemaking can be found on pages 100 and 101 of the Phase I Final Statement.

The 5/24/91 and 1/1/92 letters contain additional comments which are summarized and responded to below. Some of the comments contained in these two letters are essentially the same as, or merely expand on, comments that were raised in 1991 regarding the procedures followed in the Phase I rulemaking. These duplicate comments are not separately summarized below because they are not objections or recommendations specifically directed at the proposed action or procedures followed for the 1992 Phase II amendments.

181. Comment: In the 45-day notice for the Phase II rulemaking action, it is stated that the Board will not consider any changes to the standard for glass cleaners. The inclusion of a Phase II definition for "all other forms" in section 94508 (which is applicable to a subcategory of glass cleaners) plainly constitutes arbitrary and capricious agency action by denying any meaningful opportunity to comment, in violation of the California Administrative Procedure Act. Therefore, the regulation should be amended to eliminate the "all other forms" of glass cleaner as a subcategory of glass cleaners. (L&F)

Agency Response: In the 45-day notice for the Phase II rulemaking action, it is stated on page 4 that the Board would not consider modifications to the VOC standards, effective dates, or future effective dates which were currently specified in the Table of Standards for glass cleaners and thirteen other categories of consumer products. The purpose of

this restriction was to focus the rulemaking proceedings on the currently proposed modifications made in the Phase II proposal, and to avoid an unmanageable proceeding in which every consumer product standard previously adopted by the Board would be subject to lengthy reconsideration.

The proposed definition for "All Other Forms" was clearly a Phase II modification which was subject to change and public comment as part of this rulemaking proceeding. Indeed, the 45-day notice specifically states on page 4 that "... Possible modifications that may be made by the Board include, but are not limited to, the following: ... changes may be made to any of the definitions contained in section 94508..." It is therefore clear that in this rulemaking proceeding the proposed definition could have been modified as suggested by the commenter. While the Board chose not to follow this suggestion, it is clear that the suggested modification could have been made, and that the commenter therefore was afforded a meaningful opportunity to comment as provided in the Administrative Procedure Act.

182. Comment: For the reasons identified in the 10/11/90 and 12/28/90 comment letters, the regulation of "All Other Forms" of glass cleaner in the Phase I consumer products rulemaking was arbitrary and capricious and violated the California Administrative Procedure Act. Therefore, the regulation should be amended to eliminate the "all other forms" of glass cleaner as a subcategory of glass cleaners. (L&F)

Agency Response: As described on page 100 and 101 of the Phase I Final Statement, we believe that the 1991 Phase I glass cleaner standards were adopted in full accordance with the requirements of California law. However, the relevant question in this current rulemaking proceeding is not what happened in the 1991 Phase I proceedings, but whether the correct procedures have been followed in the adoption of the Phase II amendments. The Phase II amendments proposed a definition to clarify the term "all other forms". This is a term used in the Table of Standards for several categories of consumer products. The appropriateness of this proposed

language is an issue that is independent of the 1991 procedural issues that have been raised by the commenter.

183. Comment: While the proposed Phase II definition of the term "all other forms" will clarify the meaning of the term and staff's current intent, such a proposal cannot cure the gaps which still exist in the 1990 Phase I amendments. (L&F)

Agency Response: We do not agree that "gaps" exist in the rulemaking record for the Phase I amendments. In addition, the response to the previous comment describes why the relevant issue is the Board's current intention, not the issues raised by the commenter in the 1991 Phase I rulemaking.

184. Comment: No data was ever requested or submitted on cloth wipe glass cleaners, and no evidence was provided as to the feasibility of any particular limitation on the VOC content of glass wipes. Therefore, there is no basis in the record for proposing a standard for cloth wipe glass cleaners. (L&F)

Agency Response: As explained on page 101 of the Phase I Final Statement, over 80 per cent of currently marketed glass cleaners already comply with the proposed standards, and the basic market demand for glass cleaners will be satisfied whether or not cloth wipes are available to the public. We therefore believe that the record does contain adequate data to support the VOC standards for glass cleaner.

185. Comment: While staff asserts that cloth wipes can be eliminated from the market because over 80 per cent of existing glass cleaners already comply with the standard, staff has refused to reveal the identity of these "complying" products despite repeated requests for this data. It is therefore impossible to determine objectively whether there are indeed complying products which adequately meet the public need, or to determine

their availability, efficacy, or whether they do in fact meet the standard.
(L&F)

Agency Response: The commenter seems to be suggesting that there might be errors in ARB's glass cleaner data, and that some of the "complying" glass cleaners might actually have VOC contents in excess of the specified glass cleaner standard. The ARB data is a compilation of data submitted by glass manufacturers--the very persons who are in the best position to know what ingredients are in their products. One must keep in mind that the data shows that 80 percent of current glass cleaners already comply with the standard. Even if some of this data was inaccurately reported, it is simply not credible to believe that there are enough reporting errors to even remotely support an argument that an effective glass cleaner cannot be produced at the specified VOC level. Therefore, there can be no credible argument that the specified standard is not technologically and commercially feasible.

However, in response to the commenter's request for information on glass cleaners, ARB staff performed an analysis on the glass cleaner data and made summaries of the information available to the commenter and the public. These summaries include a list by product name of the 97 currently marketed glass cleaners that comply with the 1993 8 percent VOC standard for "All other forms". The summaries were mailed to the commenter on March 19, 1992. The summaries were also included in the administrative record and made available for public comment during the 15-day comment period for this rulemaking action. (from April 15, 1991 to April 30, 1992; see page 5 of the 15-day notice.)

Hand Dishwashing Detergents

186. Comment: The standard for hand dishwashing detergents should be deleted. Little of the VOCs present in these products are emitted into the atmosphere, and only de minimis reductions in VOC emissions would be achieved through the implementation of the standards. The small amount of

VOC in the products cannot feasibly be reduced without a high economic burden on industry and on consumers. The reformulation burden on manufacturers of hand dishwashing detergents are disproportionately greater than those required of manufacturers of other consumer product categories. This is because the estimated mass ratio of product reformulated versus VOC reduced is far greater for hand dishwashing detergent than for any other product category.

ARB staff has overestimated the emissions (and potential emission reductions) from hand dishwashing because:

- (a) the survey data for hand dish washing detergents included erroneous reporting by survey respondents. These errors contributed to an overestimate of emissions and emissions reduction. Some manufacturers mistakenly reported "LVP" compounds as VOCs. Others mistakenly reported exempted compounds as VOCs.
- (b) fragrances in consumer products are exempted up to a level of 1 percent. Counting fragrances in hand dishwashing detergents below the exempted level as VOC emissions inflates the emission estimates.
- (c) ARB staff's VOC emissions factor from hand dishwashing detergents during use is overestimated by 25 percent in comparison to results from measurements made at the University of California at Berkeley. No data substantiates this higher emissions factor.
- (d) five hand dishwashing detergent products may have been double counted in the survey. This adds to the overestimation of emissions.

ARB staff did not evaluate the cost-effectiveness of hand dishwashing detergents specifically. Therefore, they failed to account for the unique

characteristics of this product. The generalized cost-effectiveness evaluation of "household product" is inadequate. The Soap and Detergent Association's estimate of cost-effectiveness range between \$56 to 77 per pound of VOC reduced, far greater than the generalized value determined by ARB staff.

Hand dishwashing detergent products currently complying with a 2 percent VOC standard constitute only a very small percentage of the market. There is no evidence these products can be relied upon to meet the basic market demand. The small market share percentage of compliant products indicates that consumers do not prefer them to other products.

Reformulation options proposed in the Technical Support Document are not known to be commercially feasible. ARB staff has not tested or examined the potential environmental impact, human safety and product efficacy affecting the commercial feasibility of those reformulation options. In addition, the alternatives to ethanol discussed in the Technical Support Document may have other environmental problems. (PG, CSMA, SDA)

Agency Response: In Comment 186, a number of issues are raised regarding hand dishwashing detergents. To allow further study of these issues by ARB staff, the category of hand dishwashing detergent was deleted from the proposed regulation.

187. Comment: Hand dishwashing detergents should not be excluded from the "minimum recommended dilution" provision in section 94509(b). Hand dishwashing detergents are manufactured at different surfactant levels. Manufacturers may pursue even more concentrated formulation in the future to reduce packaging. While current products do not have dilution instructions, manufacturers may include specific instructions in the future. (PG, SDA)

Agency Response: As suggested by the commenter, the reference to "hand dishwashing detergent" in section 94509(b) has been deleted. This deletion is appropriate because the entire category of hand dishwashing

detergents has also been deleted from the proposed regulations. If the standards for hand dishwashing detergents are proposed as part of a future regulatory action, the issue raised by the commenter will be considered at that time.

Household Adhesives

188. Comment: The proposed rule calls for a 25 percent limit for aerosol household adhesives effective 1/1/1997. We are concerned about being able to develop aerosol adhesives that can meet the 25 percent future effective limit. Particularly, we are concerned about the availability of waterborne adhesives technology to produce aerosol products that will have fast drying times and will not distort paper substrates. Therefore, we are requesting that the ARB staff hold the future effective VOC limit for aerosol adhesives subject to review pending updates from industry on the progress towards product reformulation. (3M)

Agency Response: ARB staff has worked closely with industry in developing a standard for household aerosol adhesives which we believe to be both commercially and technologically feasible. The supporting rationale for this standard is set forth on page V.49 to V.54 of the TSD. While the Board found the proposed 25 percent standard to be feasible based on all available information, in Resolution 92-1 the Board also directed the Executive Officer to monitor the progress made by industry in meeting the future effective date, and provide biennial reports on this progress to the Board. Should any change in the 25 percent standard become necessary, this process will allow appropriate modifications to be suggested to the Board well in advance of the 1997 effective date of the standard.

189. Comment: Some of the complying aerosol household adhesives found in List 1 of the appendix to the TSD do not appear to be adhesives, including Disc Brake Quiet, and Duro Bathroom & Kitchen Tough Stain Remover. (CSMA)

Agency Response: Disc Brake Quiet was reported by Aerosol Maintenance Products as an aerosol household adhesive. Upon further review, this product was deleted from the adhesives inventory list. Contrary to the view expressed by the commenter, however, Duro Bathroom & Kitchen Tough Stain Remover is not reported in List 1 under the category of aerosol household adhesive. All survey information submitted by industry has been reviewed to correct errors, and staff will continue to correct and update the survey data when necessary.

Insecticides

190. Comment: The future effective standard of 20 percent proposed for 1/1/98 for crawling bug insecticides should be deleted because: (a) the standard would not allow a wide range of effective products to continue to exist for the control of crawling insects, many of which can be vectors for human disease. (b) Representatives from the Reckitt and Colman Company and the McLaughlin Gormley and King Company stated that their companies do not have the technology to formulate acceptable products at 20 percent VOC. (RCH, MGK, CSMA)

Agency Response: (a) We believe that the 20 percent 1/1/98 standard for crawling bug insecticides will allow for a wide range of effective products. In fact, the results from the 1991 ARB survey show that 118 out of the 265 products reported to have been sold in California in 1990 already comply with the standard. These products include aerosols, pumps, liquids, powders, and baits.

(b) Companies that currently do not have the technology to meet the 20 percent standard should have ample time to develop such technology (until 1/1/1999, since section 94509(d) allows an extra year for FIFRA-registered products). Even if certain companies are unable to meet this standard and choose to withdraw from the market, a large number of effective complying products will still be available in California.

191. Comment: The development of insecticide products include lengthy registration and testing requirements. Federal registration may become increasingly lengthy due to the manpower deficiency at EPA. It will be very difficult for industry to meet the 40 percent 1995 standard and then have to meet another standard of 20 percent in three years. (MGK)

Agency Response: As discussed at length in the responses to Comments 45 and 46, the effective dates specified for FIFRA products already account for the timing required for registration. The additional year for compliance allowed to FIFRA products provides further flexibility to manufacturers who may encounter unusual registration delays. In general, we believe that industry will have little problem in complying with the 20 percent standard, especially when one considers the fact that, as discussed in the response to Comment 190, a large number of products sold today already meet the 20 percent standard.

192. Comment: There are 99 products listed in the Technical Support Document as currently being in compliance with the 20 percent standard. However, the number of compliant products would be substantially reduced if products containing 1,1,1-trichloroethane were excluded. The efficacy of compliant water-based, non-1,1,1-trichloroethane products are questionable. Efficacy is paramount, since these products may affect public health. (RCH, MGK)

Agency Response: The number of complying products is not significantly reduced if the products containing 1,1,1 - trichloroethane (TCA) are excluded. Very few of the complying products contain TCA. None of the solid, liquid, and pump products contain TCA, and only 15 out of 33 of the complying aerosol products contain TCA. In all, 103 out of 118 products currently complying with the 20 percent standard for crawling bug insecticide do not contain TCA (the number of complying products was adjusted from 99 to 118 after the inclusion of products from the "all other insecticide" category that were identified as "crawling bug insecticides".)

Regarding the commenter's concern about efficacy, as discussed in the TSD on pp. V.65-V.67, manufacturers have submitted data to ARB staff to demonstrate that products complying with the 20 percent standard are efficacious in the knockdown and killing of pests. They have also indicated that the use of new active ingredients and improved emulsion technologies will further improve the efficacy of these products. Finally, product efficacy data already exists for all of the 118 complying products currently sold in California, since efficacy must be demonstrated before products can be approved for sale by the EPA and the Department of Pesticide Regulation.

193. Comment: In order to work out the issues regarding the 20 percent future effective standard for "crawling bug insecticide", the Board should keep open the 15-day comment period for this category. (MGK, CSMA)

Agency Response: As explained in section I of this Final Statement of Reasons, a 15-day comment period for this rulemaking action was provided from April 15 to April 30, 1992. No comments on the 20 percent standard for crawling bug insecticides were received during this period.

194. Comment: The 20 percent limit for flea and tick insecticides will not allow a wide range of effective products for use against these insects, which carry a number of serious diseases, including Lyme's Disease. The ARB should establish a standard of no less than 25 percent VOC content for this important category of insect control products. (CSMA)

Agency Response: As suggested by the commenter, the VOC limit for "flea and tick insecticide" was raised to 25 percent, in order to provide additional flexibility for manufacturers and ensure that the limits will be achieved.

195. Comment: The 30 percent standard for "flying bug insecticide" is insufficient for this major category of products. A limitation of less than 35 percent cannot be considered to be feasible in this subcategory. (CSMA)

Agency Response: As suggested by the commenter, the VOC limit for "flying bug insecticide" was raised to 35 percent, in order to provide additional flexibility for manufacturers and ensure that the limits will be achieved.

196. Comment: A VOC content standard of 40 percent for insecticide foggers cannot be achieved with current technology or any foreseeable technology without the use of 1,1,1-trichloroethane. The efficacy of these products depends on their ability to spread their small amounts of pesticide active ingredient finely and evenly throughout a room. This cannot be done if there is a significant amount of water in the formulation, since water-containing droplets are large and heavy, and tend to settle out quickly near the product. This lowering of efficacy would require manufacturers to specify higher usage rates to achieve the necessary insect control rates, and therefore could result in higher VOC emissions, and higher amounts of pesticide actives used, than with current products. The ARB should not establish a standard of less than 45 percent in this subcategory. (CSMA)

Agency Response: As suggested by the commenter, the VOC limit for "insecticide fogger" was raised to 45 percent, in order to provide additional flexibility for manufacturers and ensure that the limits will be achieved.

197. Comment: Wasp and hornet sprays cannot be reformulated to 40 percent, except through the continued usage of 1,1,1-trichloroethane. The addition of significant water content to this critical category of insecticide products would present a serious electrical hazard to the use of the product on nests on or around utility poles or other high-voltage electricity sources, and would impair knock-down, another factor critical to the safe and effective use of this product. This subcategory of products should therefore be deleted, and no regulation be promulgated until data clearly demonstrate that a safe and efficacious product can be developed and marketed to meet a given VOC content standard. (CSMA)

Agency Response: As suggested by the commenter, the standard for "wasp and hornet insecticide" was deleted pending further study. At the Board hearing, the CSMA and industry representatives stated that they will form a task force with ARB staff to study the electrical safety of "wasp and hornet insecticide" products.

198. Comment: The 20 percent standard for "all other" in the insecticide category could result in the inadvertent elimination of many specialized categories of pest control products. Such a subcategorical standard is clearly inappropriate in a category of products with so many diverse usages since it would be impossible to establish that such a limit is technologically and commercially feasible for all for the many different products that could be affected by such a standard. Virtually all of the products reported in the 1991 ARB survey actually meet the definitions of one or more of the six subcategories of products being proposed for regulation. The ARB should eliminate the subcategory of "all other insecticides" from the Table of Standards and regulate only categories and subcategories of products with similar functions and uses. (CSMA)

Agency Response: ARB staff, assisted by the CSMA pesticides task force, has concluded that products originally placed in the "all other insecticide" subcategory can appropriately be placed into the other use-based subcategories. Therefore the category of "all other insecticides" has been deleted.

199. Comment: The section on insecticides provides an erroneous description of the subcategory "all other insecticides" (on page V.56 of the TSD). Virtually all "multi-purpose ready-to-use or concentrated insecticides" would fall into one of the other use-based subcategories if the "best describes" definition for product category is used. In addition, "insecticides used on the human body or clothing" are products that were excluded from ARB's product survey, with the exception of some moth-control products that would meet the definition of flying insecticide. (CSMA)

Agency Response: As suggested by the commenter, the category of "all other insecticides" has been deleted. Regarding the commenter's second point, the exclusion of products designed for application on humans or animals is included in the definition for all insecticide subcategories (see the response to Comment 9).

200. Comment: (a) While it is true that manufacturers have been successfully seeking to move to water-based pesticide formulations for several decades, it is not accurate to state (on page V.64 of the TSD) that water-based systems are inherently less toxic than organic solvent-based formulations, (b) it is also misleading to state that loss of active ingredients should not be a problem because the compounds not supported for reregistration "will predominately be uncompetitive products that do not represent the mainstay of the marketplace," since nonagricultural products cannot themselves provide a sufficient financial basis for the maintenance of most active ingredients registrations, but must rely on the far higher volumes of usage for agricultural purposes. (CSMA)

Agency Response: (a) We do not agree that the statements referred to in the commenter's first comment are misleading. It is stated on page V.64 of the TSD that:

"reformulation with water-based systems allows companies to substitute inert ingredients that may have potential toxic effects with one that is inherently safe - water. Many compounds in petroleum distillates such as hexane and xylene, are identified in the Federal Clean Air Act as hazardous air pollutants. In addition, these compounds are considered by the EPA as inert ingredients of toxicological concern...."

The above statement about the compounds found in petroleum distillates is based on the fact that these compounds have been listed by the EPA as compounds with potential toxic effects. These lists have been published in the following two public documents: (1) EPA's "Inert Ingredient in

Pesticide Products; Policy Statement", Federal Register, April 22, 1987, attached as appendix C.3 to the TSD, and (2) Title III, section 112 of the Federal Clean Air Act. The statement that water is inherently safe is based on the rather obvious truism that normal exposure to water does not cause toxic health effects in humans.

(b) We also do not believe that the following statements referred to in the commenter's second comment are misleading. These statements (TSD, page V.69-71) are as follows:

"...while some actives will certainly be 'lost' from the FIFRA re-registration and the SB950 processes, the manufacturer's ability to reformulate products for compliance will not be restricted. Most of the compounds or uses 'lost' will be those that are economically impractical to support. These compounds will predominantly be uncompetitive products that do not represent the mainstay of the marketplace, or compounds that are old will be superseded by new, more effective compounds. Formulators will have available these new compounds along with re-registered traditional 'workhorse' compounds to formulate new low VOC products."

As stated at length in the TSD, many promising and "workhorse" active ingredients will be the first to complete the re-registration reviews and the SB950 data call-ins. Insect growth regulators such as hydroprene and methoprene, which are becoming popular ingredients for consumer crawling bug and flea and tick products, are among the first products to be re-registered. SB950 data-gaps for pyrethroids such as permethrin and allethrin, "workhorse" ingredients in consumer aerosol products, have all been filled. These examples show that popular ingredients used in consumer products have been protected. On the other hand, many consumer and agricultural uses of older ingredients that are becoming less popular, such as parathion and naphthalene, are being "dropped" as a result of the re-registration and SB950 process.

201. Comment: There are significant numbers of miscategorizations within the insecticide subcategories found in the appendix to the TSD. The List 1 summaries of complying products and List 2 summaries of all products contain, for instance, outdoor flying insect foggers in the (indoor) insecticide fogger list, houseplant insecticides in the lawn and garden list, and virtually every subcategory of product in the "all other insecticides" list. The "all others" list also includes a number of products that should not be considered insecticides under this regulation, including lice sprays for use on humans and animals, some agricultural-use products, and some molluscicides (sic). The flea and tick list has some animal-use products (even though they were exempted in the survey's definition of insecticide), but does not include the majority of on-pet flea and tick products, including those of the market leader. We suggest that these data be re-reviewed for accurate classification and to assure that all products are represented. (CSMA)

Agency Response: Prior to the Board hearing, the ARB staff worked extensively with the CSMA Pesticide Task Force members and individual survey respondents to insure that all product entries were placed into appropriate subcategories. All of the product entries discussed above were examined and, where appropriate, reclassified into another subcategory or deleted. As a result, all of the entries in the subcategory of "all other insecticide" were either placed into an applicable use-based subcategory or deleted. Other miscategorized entries, (e.g., flying insect outdoor foggers as an "insecticide fogger") were also placed into the appropriate subcategory (e.g., flying insect outdoor foggers as a "flying bug insecticide"). The entries of products that are not intended to be covered by the regulation (e.g., products used exclusively for animals and humans, agricultural products, and non-insecticide pesticides) were all deleted.

Laundry Prewash

202. Comment: The ARB should reconsider the regulation of laundry prewash since data submitted to the ARB suggests that little or no reductions in VOC

emissions occur due to the fact that most of the VOCs in non-aerosol laundry products are never emitted. The VOCs in these products are diluted and discharged in sanitary wastewater where they are biodegraded during wastewater treatment. (CSMA)

Agency Response: The information submitted by industry regarding the emissions of laundry prewash and the emissions of laundry detergent is insufficient to demonstrate that most of the VOCs from laundry prewash are never emitted.

As discussed in greater detail in the Final Statement of Reasons for the "Phase I" consumer products rulemaking action (Appendix A, pp. 40-41), the results from the study measuring the emissions of laundry detergent is not applicable to laundry prewashes. The emissions mechanism from laundry prewash is very different than that of laundry detergents because the two products are used very differently. Detergents are added directly to water and used in a closed container (i.e. washing machine) for only minutes before it is rinsed and flushed down the drain. Prewashes are applied directly to clothes, which can then be left in the open atmosphere for days. The direct exposure to air and the longer exposure time will greatly increase the emission potential of VOCs from laundry prewash.

Results from an experiment by industry measuring the weight loss of fabrics treated with laundry prewash cannot be relied upon to represent emissions from the use of prewashes. As discussed in greater detail in the "Staff Report - Phase II Consumer Products" (pp. 46-47), the simple gravimetric study failed to account for many factors fundamental to a study on emissions. Unlike the above mentioned study on laundry detergents, the simple test on laundry prewash failed to speciate and mass-balance the measured VOCs. In addition, it failed to account for other key factors that would influence the result, such as the absorption of ambient air moisture by the fabric and by the hygroscopic VOC compound (glycol ether) that was used for the test.

203. Comment: We question whether ARB staff's recommendation not to change the laundry prewash standard fulfills the 1990 Board Resolution. We have seen no actual evidence that new, updated data on laundry prewash products which was supplied to ARB's 1991 product survey were reviewed. (CSMA)

Agency Response: We believe that the 1990 Board Resolution directing staff to "gather data on the feasibility of a 5 percent standard for laundry prewash (all other forms)" has been fulfilled by efforts in this rulemaking action. ARB staff thoroughly reviewed all available data on laundry prewash products. As stated in the "Staff Report - Phase II Consumer Products" (pp. 46-47), results from the ARB staff's consumer product survey of 1991 show that over 94 percent of the laundry prewash (all other forms) products sold in California in 1990 already comply with the 5 percent standard. This overwhelming degree of compliance indicates that the 5 percent standard is both technologically and commercially feasible.

204. Comment: The ARB has established an unreasonable standard of proof regarding how much of the solvent content is emitted during the use of laundry prewash products. Data has been supplied that provides reliable and convincing evidence that VOC content is not equal to emissions in this category. The requirement for a "speciation analysis to accomplish a per compound mass balance" establishes an unreasonable burden of proof. (CSMA)

Agency Response: We do not believe that an unreasonable standard of proof has been established regarding emissions from laundry prewash products. As discussed in the response to Comment 202 and in the Staff Report (pages 46 and 47), we believe that the data submitted on laundry prewash failed to account for key factors crucial to studies on VOC emissions. Therefore, we also believe that the data does not substantiate the "lack" of emissions from laundry prewashes.

Laundry Starch Products

205. Comment: The Laundry Starch Products Group believes that a 5 percent standard penalizes an industry which has minimized its VOC content levels. (FSBA)

Agency Response: ARB staff does not believe that the proposed 5 percent VOC content standard serves as a "penalty". It is not relevant whether some companies may or may not have taken steps to reduce VOC content in the past. The relevant issue is whether the proposed VOC standard is technologically and commercially feasible. As explained on pages V.74-V.76 of the TSD, 26 products currently comply with the proposed standard of 5 percent VOC content, and we believe that this standard is technologically and commercially feasible.

206. Comment: The use of a flexible, weighted dip tube described as an "Anti-Abuse" system by CMB Packaging Technology in the July 1990 issue of Aerosol Age is suggested by ARB staff as a possible modification that may be useful in reducing "failure-to-empty" complaints. This system will not mitigate the failure-to-empty complaints for aerosol laundry starch products since it behaves in the exact same manner as the currently used oriented dip tube. (FSBA)

Agency Response: As indicated in the TSD (pg. V.76), the "anti-abuse" system by CMB Packaging Technology was suggested as one possible remedy for "failure-to-empty" problems. We do not agree with the commenter's statement that the "anti-abuse" system (weighted dip tube) behaves in the exact same manner as the currently used dip tube. In the current system, the consumer must ensure that the product is used according to the labeling directions on the back of the can. Part of these instructions indicate that the consumer must be certain that the arrow on the nozzle points to the dot on the can's rim. If the arrow and the dot do not match, the can may not empty completely. This is due to the positioning of the standard curved dip tube which is oriented in one position inside the can and does not move. In contrast, the "anti-abuse" system, which uses a flexible weighted dip tube, "chases" the product in the can, thereby minimizing propellant loss.

Weighted dip tubes do not rely on correct usage by the consumer and therefore is not subject to the same incomplete evacuation problems caused by consumer abuse.

207. Comment: The section on laundry starch products in the TSD contains a number of misleading statements. The VOC content of the current aerosol spray starches ranges from 5 percent to 6.5 percent, not just 5 percent to 6 percent, which is an important distinction. The products that meet the 5 percent standard proposed have been the subject of consumer complaints of "failure-to-empty." The flexible, weighted dip tube technology cited on page V.76 is not designed to address inverted can situations, only horizontal can situations, which is already addressed by the currently used curved dip tube technology for these products. (CSMA)

Agency Response: On page V.76 of the TSD, a propellant content range of 4 to 6 percent is identified. While in this reference the 6.5 percent figure has been rounded to 6 percent for purposes of clarity, the more detailed summary #1 contained in Appendix B.3 of the TSD for Laundry Starch Products shows a VOC content range of 4 to 6.5 percent. (Not 5 percent to 6 percent, as stated by the commenter.) Also, no evidence has been presented which demonstrates that products which meet the 5 percent VOC content standard are subject to significant "failure-to-empty" complaints. Staff contacted a number of manufacturers with complying products and found no indication of "failure-to-empty" problems due to the VOC content levels of these products.

The flexible, weighted dip tube technology mentioned on page V.76 of the TSD was not cited to address inverted can situations, but merely as one possible modification to current aerosol laundry products that could be made to reduce any possible "failure-to-empty" problems. More importantly, even cans with properly oriented curved dip tubes would be depleted of propellant when inverted. Therefore, this issue is not relevant to setting an appropriate VOC standard.

Personal Fragrance Products

208. Comment: The Cosmetic, Toiletry, and Fragrance Association strongly supports the ARB staff recommendation in its revised proposal and supports its adoption by the Board. Compliance with the staff's original proposal of October 1991, would not be technologically or commercially feasible for manufacturers of personal fragrance products. Industry can realistically work to achieve the VOC limits of the modified proposed regulations. (CTFA)

Agency Response: As noted by the commenter, the original proposal was modified in response to industry concerns.

209. Comment: The qualifying reference "...having VOC contents less than 50 percent by weight..." for lotions, moisturizers and skin care products should be deleted from the "Personal Fragrance Products" definition. The exclusion of these products from the personal fragrance products standards should be based on their intended and labeled use. Regardless of the VOC content of these products, they are clearly not intended for use primarily as personal fragrances. (PG)

Agency Response: The definition of "Personal Fragrance Product" was modified as suggested by the commenter.

210. Comment: The standards for personal fragrance products should be deleted. It is not feasible to reduce the VOC content of these products without destroying their character. The proposed exemption of some existing products reflect ARB staff's recognition of this fact. (PG)

Agency Response: The originally proposed standards for personal fragrance products were modified in response to industry comments. The modified standards are feasible and have received the support of the Cosmetic, Toiletry, and Fragrance Association (CTFA), one of the primary trade associations representing the personal fragrance industry.

The proposed exemption for existing personal fragrance products does not demonstrate that the standards are not feasible. In fact, a significant percentage of the market already complies with the originally proposed VOC standards that are shown on page V.81 of the TSD. Although the TSD identifies technology which may be used to meet the standards in the regulation, the staff is not aware of a means to reformulate existing products while retaining the identical scent. New products, however, can be designed within the constraints of the proposed VOC standards. In consideration of these and other factors discussed in the TSD (pages V.77-V.84), the Board determined that the proposed standards should only apply to new products.

211. Comment: The exemption for some existing personal fragrance products should be applied to all products. Aftershaves and body splashes have the same reformulation burdens as other personal fragrance products. Therefore, existing products from these categories should also be exempted. (PG)

Agency Response: As suggested by the commenter, the exemption for existing products has been modified to include all personal fragrance products (see section 94510(h)).

212. Comment: The proposed regulations will dramatically and adversely affect personal fragrance products, effectively banning the sale of many. I urge the Board to take no regulatory action which would have the effect of banning personal fragrance products that are now or will be sold in the future in California. (BJ)

Agency Response: As stated in the previous two comments, the originally proposed standards for personal fragrance products were modified in response to industry comments. The modified standards are feasible and will not have a dramatic adverse effect on the personal fragrance industry. The modified standards have received the support of the Cosmetic, Toiletry, and Fragrance Association (CTFA), one of the primary trade associations representing the personal fragrance industry.

213. Comment: The estimated emission reduction of 380 pounds per day from personal fragrance products is extremely small compared to the emissions from all sources of volatile organic compounds and these proposed regulations will have an extremely de minimus effect on smog formation.
(BJ)

Agency Response: As explained on pages 9-14 of the Staff Report California's air quality problems are so serious that it is necessary to regulate even small sources of emissions in order to achieve attainment with ambient air quality standards, as required by the California Clean Air Act. Although consumer products categories are individually small sources of emissions, when the millions of consumer products used each day in California are considered, the total emissions cumulatively become significant. It is therefore apparent that even small sources of consumer product emissions must be regulated in order to fulfill the Legislature's mandate to "...achieve the maximum feasible reduction in reactive organic compounds emitted by consumer products...".

214. Comment: The financial impact of the proposed regulations on the fragrance industry will be great. The impact on California jobs and sales tax receipts will be substantial. These adverse impacts, for such a minimal amount of emission reductions, are simply not justified. The ARB should re-evaluate its proposed regulation of personal fragrance products and should identify a more efficient and cost effective approach for consumer product regulation. (AT, BJ)

Agency Response: As explained in the responses to the previous comments, the originally proposed standards for personal fragrance products were modified in response to industry comments. The modified standards are feasible, will not have a significant impact on California industry, and are justified by the serious nature of California's air quality problems. In addition, the cost effectiveness of the proposed standards are within the range of other control measures adopted by the Board (see Table VI-1 on page VI.6 of the TSD).

RESPONSE TO COMMENTS RECEIVED DURING THE FIRST 15-DAY COMMENT PERIOD

Following are summaries and responses to comments received during the first 15-day comment period for this rulemaking (April 15-30, 1992). The 15-day notice issued April 15, 1992 stated that only comments relating to modifications made to the original proposal would be considered by the Executive Officer. The rulemaking file has been compiled accordingly. In addition, a number of commenters repeated comments that they had previously made in response to the 45-day notice. Many of these comments are summarized in the above portions of this Final Statement of Reasons and are not separately summarized below.

Q. Administrative Requirements

215. Comment: The SDA proposes that subsection 94512(a), "Most Restrictive Limit", be deleted in its entirety. A product can be categorized into a single category utilizing the definition for "product category"; therefore, subsection (a) is redundant. (SDA)

Agency Response: The issue raised by this comment are addressed in the responses to Comments 2 and 3.

216. Comment: The SDA supports the concept of relating the requirements for code-dating to the effective dates of the applicable standards in subsection 94512(b) and (c). However, these sections should be implemented within three months of the effective dates of the VOC standards for a product category, not twelve months. A three month period is sufficient. (SDA)

Agency Response: The issue raised by this comment is addressed in the response to Comment 1.

217. Comment: Regarding section 94512(a), in principle, we continue to believe this subsection is unnecessary and undermines the validity of the

VOC standards in section 94509(a), which are based on the VOC survey data the ARB has collected. However, we support this modification because it appropriately focuses the categorization of the product on the primary intended uses identified on the product's principal display panel. (PG)

Agency Response: The response to Comment 2 explains why section 94512(a) is necessary. The modifications made to section 94512(a) in this rulemaking action will address industry's concerns and at the same time maintain the intent of the provision to prevent circumvention of the VOC standards.

218. Comment: We support the incorporation of an exemption from the code dating requirement for free samples of personal fragrance products in section 94512(b). However, we recommend extending this exemption to free samples of all consumer products which are small and difficult to code-date. The exemption should also account for the fact that free samples from different categories may differ greatly in size, as general purpose cleaner samples could be several ounces while personal fragrance are 2 milliliters or less. In addition, since free samples represent available products, which would be compliant with the VOC standard, the samples would be complaint and would not need to be code-dated.

(b) Code-Dating. Each manufacturer of a consumer product...personal fragrance products of 2 milliliters or less, or to samples of other consumer products, which are offered...sampling the product. (PG, SDA)

Agency Response: The commenter's proposed modification for 94512(b) is not appropriate because it would unnecessarily relax the code-dating requirement. The exemption for personal fragrance free samples of 2 milliliter or less is based on evidence showing that it is difficult to imprint code-dates on samplers of that small size (less than about 1 inch in height and one-quarter inch in diameter). There is no evidence to suggest that free samples of other consumer products would have such practical

problems. In fact, in the example given by the commenter, a general purpose cleaner free sample of several ounces is larger than most commercially available sizes of personal fragrances, which must be code-dated.

We also do not agree with the commenter's statement that since a free sample represents commercially available products, it would necessarily be compliant with the VOC standard and therefore would not need to be code dated. During the 18-month sell-through period for each product category, a product's "compliance" with the regulation will often depend on the date the product was manufactured (i.e., high VOC products can legally be sold for up to 18 additional months if they were manufactured prior to the effective date specified in the Table of Standards). Therefore, for products with a VOC content greater than the standard, it will not be possible to tell if the product "complies" with the regulatory requirements unless it is code-dated. After all, VOCs enter the atmosphere from both "free products" and products that cost money. Relaxing the code-dating requirement might simply provide an incentive for manufacturers to dispose of high-VOC products by giving such products away as free samples in support of an advertising campaign.

R. Definitions

219. Comment: The word "primarily" should be restored to the definition of "bathroom and tile cleaner." The deletion of this word in the Phase II amendments increases the ambiguity of "bathroom and tile cleaner."
(PG, SDA)

Agency Response: The word "primarily" was deleted because it is unnecessary and does nothing to improve the clarity of the regulation. The regulation specifies that the product category for each product is the "applicable category which best describes the product, as listed in section 94508". The determination of product category must be made on a case-by-case basis, after comparing the claims made by the product with the definitions set forth in section 94508. The apparent concern of the

commenters is that a "general purpose cleaner" (which is subject to a 10 percent VOC standard) might be classed as a "bathroom and tile cleaner" (which is subject to a lower 7 or 5 percent standard) simply because it might be stated on the label that the product works to clean bathrooms or tile. However, this potential concern has been eliminated by the language of section 94512(a), which states that "general purpose cleaners" are not subject to the "most restrictive limit" provision. The purpose of this exclusion for general purpose cleaners addresses the underlying concern expressed by the commenters. The addition of the term "primarily" simply introduces an additional criterion which would not be helpful in making practical distinctions for this product category.

220. Comment: Reinstate the word "primarily" in the definition for "Bathroom and Tile Cleaner" (11) such that it reads as follows:

(11) "Bathroom and Tile Cleaner" means a product designed primarily to clean...or toilet tanks.

While the word "primarily" is not absolutely critical to this definition, it certainly helps to clarify that "Bathroom and Tile Cleaners" are distinctly different from general purpose cleaners, some of which can be used for cleaning some bathroom surfaces but for which they are not principally designed. The word "primarily" is used in other definitions and helps to narrow and add specificity to those definitions, as it does here. (PG)

Agency Response: See response to the previous comment.

221. Comment: We support the modifications made to the definition for "General Purpose Cleaner" (41). As modified, the definition more clearly distinguishes between general purpose cleaners and glass cleaners. As a result, glass and multi-surface cleaners are more easily and appropriately classified as general purpose cleaners, which they are. (PG)

Agency Response: We agree that the clarity of the regulation has been improved by the modification made to the definition of "general purpose cleaner". However, it is not accurate to make a broad generalization that all "glass and multi-surface" cleaners should be classified as "general purpose cleaners". The appropriate classification must be made on a case-by-case basis, after comparing the claims made for the product with the definitions set forth in section 94508.

222. Comment: The definition of "disinfectant" should be deleted. We assume that the inclusion of it is a typographical error since the introduction to the April 15 ARB notice of public availability of modified test refers to it as deleted. (CSMA, SDA)

Agency Response: It is not appropriate to delete the definition of "disinfectant" because the existing regulation still contains a definition and VOC standard for "dual-purpose air freshener/disinfectant aerosol" products. The commenter correctly points out that a typographical error was made in the 15-day notice made available to the public on April 15, 1992. This error was corrected in the second 15-day notice (made available to the public on August 17, 1992) which specifically states that the Board intends the "disinfectant" definition to be included in the language of the regulation.

223. Comment: The definition of "insecticide" should exclude "products designed for application on humans or animals", consistent with the definition used in ARB's 1991 consumer products survey. Data on products for application on humans or animals was not collected in ARB's survey. Although most products designed to be applied to animals are flea and tick or agricultural products, some are not. (CSMA)

Agency Response: The issue raised by the commenter has been addressed in the response to Comment 9.

224. Comment: The definition of "LVP Compounds" should be modified to include low-carbon-number solids which do not sublime and for which no volatility test data exist. We believe the recommended modification would improve compliance with the Table of Standards by making it clearer to manufacturers those compounds which would qualify as "LVP". Some manufacturers lack the technical expertise or do not have access to the data necessary to determine that certain compounds qualify as "LVP". Failure to make this modification could result in many companies reporting and treating as VOCs many nonvolatile solids. In addition, U.S. EPA has adopted a very similar provision in their definition of "reportable volatile organic compound" in their consumer product survey. If this clarification cannot be accomplished within the scope of these regulatory requirements, we continue to urge CARB to issue a technical advisory simultaneously with these regulations. Failure to address this problem would result in needless, avoidable confusion among companies seeking to develop and market products in compliance with this regulation. (CSMA)

Agency Response: The issues raised by the commenter have been addressed in the responses to Comments 57-59.

225. Comment: We support the modifications made to the definition for "Product Category" (71). In conjunction with definition (69) "Principal Display Panel," this definition appropriately structures the regulation to result in a product's being classified (and, therefore, subject to a VOC standard) according to its primary intended use, as indicated on its principal display panel. (PG)

Agency Response: We agree that the proposed definitions of "Product Category" and "Principal Display Panel" help clarify the process of identifying the appropriate product category. It should be noted, however, that the commenter has incorrectly stated that a product's primary intended use will determine which VOC standard applies to the product. There may be cases in which the principal display panel states that the product falls into one category (e.g., the product is labeled as a "dusting aid"), but the

principal display panel also represents that the product may be used as or is suitable for use as a product for which a lower VOC standard is specified in the Table of Standards (i.e. a "furniture maintenance product"). In such cases, section 94512(a) provides that the lowest VOC standard shall apply, not the standard that applies to the product's "primary intended use".

S. Emissions and Air Quality Impacts

226. Comment: In attempting to abate ozone levels as expeditiously as possible, the ARB is simultaneously and possibly haphazardly regulating all alleged sources without evaluating the collective impact of, or need for, these regulations. If, however, the ARB would take the time to assess current conditions, they would have to acknowledge that great strides have already been made in improving air quality as demonstrated by reports generated by the South Coast Air Quality Management District (SCAQMD).
(TAG)

Agency Response: We agree that great strides have been made in improving air quality, as demonstrated by recent reports. We believe that these improvements are the aggregate results of past and present emission reduction control strategies implemented by both the ARB and the SCAQMD over the past decades. These past and present emission reduction strategies have been adopted to regulate nearly all existing stationary, mobile, area-wide, and indirect sources of ozone precursor emissions. However, the same reports cited by the commenter also show that, even with the great strides that have been made in reducing air pollution, the levels of ozone in the SCAQMD are still approximately two and one-half times the national ambient air quality standard for ozone (NAAQS) and higher still relative to the state standard (CAAQS). Moreover, the number of days of exceedances of the NAAQS and CAAQS for ozone in the SCAQMD (over 100 days exceedances per year) and elsewhere in California still constitutes a very significant health problem. Clearly, much has been accomplished to date; however, this should not diminish the fact that much additional work remains to be done in further reducing the ambient levels of ozone and other pollutants in

California. The consumer products regulations are part of the overall strategy for achieving the maximum feasible emission reductions from all feasible sources in California.

227. Comment: Due to the already realized and impending improvements in air quality, the regulations, which haven't been proven necessary today, will be even less so by the time they are to take effect. (TAG)

Agency Response: We disagree. For several local air pollution control districts, attainment of the NAAQS and CAAQS for ozone is not expected for many years. This is especially true for the South Coast AQMD, which represents nearly half of all consumer products VOC emissions and where attainment is not expected until well beyond the year 2000. The consumer products regulations, in conjunction with other current and future control strategies, are necessary now and will still be necessary in the future, if the NAAQS and CAAQS are to be attained and air pollution is to be reduced to acceptable levels in California. The necessity of the regulations is further discussed at length in ARB staff's responses to Comments 30-40 and the previous comment, as well as applicable discussions in the Technical Support Document and the Staff Report.

228. Comment: The regulations may negatively impact the environment because changes to certain products used to maintain the efficient performance of automobiles, as required by the Phase II amendments, may actually increase automotive emissions from older vehicles, which we have already stated are the the greatest source of emissions. (TAG)

Agency Response: We believe the commenter is referring to the regulatory standard for carburetor-choke cleaners, which is the only product category that has any relationship to an automobile's combustion efficiency. In response, we disagree with the commenter's contention that the regulations will result in decreased carburetor efficiency which, in turn, will increase emissions from older vehicles. The issues related to possible increases in automobile emissions due to reformulated carburetor-choke

cleaners have already been addressed at length in ARB staff's responses to Comments 142-158. Briefly, the 1991 ARB VOC survey shows that there are 12 aerosol carburetor-choke cleaners which already meet the proposed 75 percent VOC standard. These products perform at least as well as existing high-VOC products in unsticking and cleaning those components that affect carburetor efficiency. Since the efficiency of the carburetor will not be adversely affected by the use of these products, no increase in automotive emissions from older vehicles will occur as a result of the regulations.

229. Comment: The ARB has always acknowledged that consumer products are a minor source of VOC emissions (10 percent of non-vehicular emissions, itself a grossly inflated and inaccurate figure). However, with on- and off-road vehicles being allocated a larger share of the pie as emissions inventories are revised, the percentage attributable to consumer products is clearly insignificant and further evidences the lack of necessity for the regulations. In addition, the National Research Council report further calls into question the ARB's strategy. The ARB should evaluate the necessity of the regulations, considering whether the regulation of VOC emissions from consumer products, at extreme costs to the industry and state, is the proper approach to ozone abatement in California. (TAG)

Agency Response: This comment and other general comments regarding the necessity of the regulations have been addressed at length in the responses to Comments 28-29, 34-38, 40, 101, and on pages 9-14 of the Staff Report.

230. Comment: California Health and Safety Code section 41712 states that consumer product regulations shall not be adopted unless they are technologically and commercially feasible and necessary. The ARB has not performed the required analysis to show that consumer products regulations are necessary. Broad statements such as "these sources must be addressed because they are a significant part of the overall air pollution problem" make it clear that the necessity for the regulations has been assumed. In

considering the necessity of the regulation, we urge the ARB to consider the following factors:

- (a) a report by the National Research Council (NRC), "Rethinking the Ozone Problem in Urban and Regional Air Pollution", found that inaccurate estimates of VOC emission inventories have resulted in misdirected regulatory ozone control strategies. Since ozone formation results from a reaction between VOC and NOx in the atmosphere, a miscalculation of the ratio of these two precursors, would have a major impact on ozone prevention strategies. The NRC report recommends a fundamental change in strategy, stating that NOx control may be more effective.
- (b) the increasing evidence that emissions from vehicles are greater than originally reported. Non-road vehicles and engines have also been recently recognized by the Environmental Protection Agency as a major culprit.
- (c) the gains to be achieved from the already adopted, but not yet implemented, mandated reduction of VOC and NOx, especially from mobile sources.
- (d) the economic injury to the consumer products industry without significant benefit to air quality. (TAG)

Agency Response: In response to the commenter's general concerns, the ARB has not "assumed" that the consumer products regulations are necessary. This conclusion is supported by decades of air pollution research and data. We believe that the information available in the Technical Support Document, Staff Report, and other relevant literature included in the rulemaking record amply demonstrate the need to achieve significant reductions in ozone precursor (i.e., VOC) emissions. With regard to the commenter's specific points, these were addressed in previous staff responses as follows:

- (a) This comment was addressed in the responses to Comments 38-40. Briefly, the NRC report cited by the commenter does not state that NOx-only control strategies are appropriate for reducing ozone levels. Rather, the report provides support for simultaneous reductions of both NOx and VOCs, as appropriate and to the degree dictated by local ambient conditions, rather than a VOC-only general control strategy. California, unlike many other states with control strategies heavily emphasizing VOC-only controls, has been employing this dual-precursor emissions reduction strategy for years. Thus, there is no need to shift ARB's regulatory focus.
- (b) We recognize that there have been some recent developments which indicate that vehicular emissions may have been underestimated. However, these reports do not demonstrate a need to shift away from California's current strategy of achieving the maximum feasible emission reductions from all vehicular and non-vehicular sources, including consumer products. With regard to non-road vehicles and engines, the ARB has already embarked on an ambitious control strategy to limit emissions from these sources.
- (c) As stated in the responses to previous comments, we recognize that great strides have been made in the past in reducing overall air pollution in California. However, given that over 90 percent of Californians are still exposed to significant levels of ozone which frequently exceed the NAAQS and CAAQS, it is clear that much more work needs to be done to achieve further reductions in air pollution. To achieve further reductions in ozone precursor emissions and other air pollutants, the consumer products regulations have been adopted as part of the on-going strategy to control existing sources of vehicular, stationary, area-wide, indirect and off-road sources of emissions.

The commenter seems to be suggesting that control measures which have already been adopted will be sufficient to attain federal and state ambient air quality standards within a short period of time. However, it is widely recognized by air pollution experts that this is not the case for the most heavily polluted areas of California. To illustrate the magnitude of the problem, the SCAQMD and ARB have conducted extensive research efforts which show that the SCAQMD must reduce VOC emissions by nearly 90 percent from current (i.e., 1987) levels in order to achieve attainment with the NAAQS by the year 2010. An even greater amount of reduction is obviously needed in order to attain the more stringent CAAQS. This reduction from current levels must be accomplished even though demographic estimates demonstrate that the SCAQMD area will undergo a projected 31 percent growth in population and 62 percent growth in vehicle miles traveled by the year 2010. If no additional control measures are adopted, it is recognized that these demographic and vehicular usage trends will cause emissions to begin to increase from current levels by the year 2000.

- (d) Issues related to the cost-effectiveness of the regulation are discussed at length in the responses to Comments 15-29. Briefly, we believe that the available data shows that the cost-effectiveness of the Phase II amendments is consistent with the cost-effectiveness of similar regulations adopted recently by the Board. As for the benefits to air quality resulting from the regulation, this issue has been discussed at length in the responses to the preceding four comments.

T. Exemptions

231. Comment: The modification to the exemption for "LVP compounds" fails to address SDA's concerns. There are some compounds for which no vapor pressure data are available and which contain 12 or less carbon atoms, but

are solids at room temperature and do not sublime to the gaseous phase at room temperature. Such compounds may be classified as a VOC, even though these materials do not contribute to VOC emissions. The exclusion language should be based on melting points, which are more readily obtained than vapor pressures, and should be modified to exclude materials that are solids and do not sublime at room temperature. Since the melting points of organic salts are greater than the melting points of the parent acids, the language should also exclude the salts of any organic acids that are exempted by virtue of its melting point. The SDA has proposed new language accordingly to address its concerns. (SDA)

Agency Response: The issues raised by the commenter have been addressed in the responses to Comments 57-59.

232. Comment: The ARB staff has proposed at the workshops that compounds for which no vapor pressure data are available be addressed through the issuance of guidance documents. However, this informal process does not provide formulators with sufficient certainty in their formulation decisions. Therefore, the SDA proposes that the identification methods using melting points for LVP compounds be codified as previously proposed into the regulation. (SDA)

Agency Response: The issues raised by the commenter have been addressed in the responses to Comments 57-59.

233. Comment: Section 94510(d) should be modified to read as follows:

- (d) The requirements of section 94509(a)...
 - (2) consists of more than 12 carbon atoms, if the vapor pressure is unknown, or
 - (3) has a melting point higher than 20 degrees Centigrade and does not sublime, if the vapor pressure is unknown.

If an organic acid is exempted by this section then salts of that acid are also exempted.

Our reasons for recommending these changes are given below:

- (a) although the ARB recognizes there are many carbon containing compounds other than those listed in Table B that are inappropriate and unnecessary for regulation, as currently crafted, it is still incomplete and ambiguous. To date, the ARB has suggested the only means to address this concern would be to include a section in a guidance document. However, we disagree with this approach. We believe the identification of the materials subject to the regulation is so important it should be codified in the regulation itself.
- (b) vapor pressure should not be the sole basis for qualification as an LVP compound because there is no scientifically sound foundation for it. It is the propensity for a material to be emitted to the air which should dictate its classification. There are many materials which are so obviously not volatile that their vapor pressures are not available and would be difficult, expensive or, perhaps, impossible to measure. For materials such as these, physical/chemical properties other than vapor pressure are equally valid indicators of their emission potential.
- (c) such an approach is not unprecedented. The U.S. Environmental Protection Agency has agreed to use a similar approach in surveying the VOC content of consumer and commercial products for its report to Congress under the Federal Clean Air Act.
- (d) if section 94510(d) is not modified, then the ARB will force manufacturers either to expend their limited resources demonstrating that these materials exert virtually no vapor pressure, or to exercise technical judgement to conclude that,

although not measured, these vapor pressures are not "unknown" and run the risk of being second guessed in an ARB enforcement action. (PG, CSMA)

Agency Response: The issues raised by the commenter in (a) through (c) have been addressed in the response to Comments 57 and 58. Regarding comment (d), we believe that the determination of the vapor pressure of compounds is a reasonable task for manufacturers. A great deal of vapor pressure data already exists in current literature. We also believe that the raw material suppliers to consumer products manufacturers will begin to supply vapor pressure data for compounds as demand for this data increases. In addition, the ARB will further assist manufacturers by developing an advisory to help manufacturers find information to determine the vapor pressure for compounds.

234. Comment: Granting consumer product exemptions (section 94510(e)) from these regulations because products are registered under the Federal Insecticide, Fungicide and Rodenticide Act, does not insure any decrease in smog or safety for the ambient air or those of us who have to breath it. The federal standards are less restrictive than the ARB standards would be. (EHN, HH)

Agency Response: The commenter does not understand the exemption. The exemption under 94510(e) applies only to the requirements of section 94512(b), ("Code-dating") for FIFRA-registered products. This exemption was included in order to comply with the provisions of FIFRA (7 U.S.C. section 136v). FIFRA products still must meet the VOC limits specified in the Table of Standards. Furthermore, there is no advantage to be gained by a manufacturer who does not display the date of manufacture on a FIFRA-registered product, since section 94509(c) specifies that the 18-month "sell-through" period does not apply to any consumer product which does not display the date of manufacture on the product container.

235. Comment: Granting an exemption (section 94510(b)) for products manufactured in California and shipped outside the state does nothing except put the end products problems in someone else's backyard. Also, the manufacturing process has a great potential of producing at least as much or more releases of VOC's into the ambient air than the consumer products. (EHN, HH)

Agency Response: With regard to the manufacture of noncomplying products for use outside of California, the ARB does not have the authority to regulate emissions from consumer products used in other states. Each state is free to regulate emissions from consumer products if it determines that such an approach is necessary to attain air quality goals for that particular state. The commenter also addresses the emissions from the manufacture of consumer products in California. The manufacturing facilities used to make consumer products are stationary sources that are subject to the regulatory control of the local air pollution control and air quality management districts (Health and Safety Code section 39002). With limited exceptions, the ARB does not have the authority to control these types of stationary source emissions.

236. Comment: The exemption (section 94510(f)) from regulation for air fresheners allows these products made almost entirely of VOC's to go totally unregulated. (EHN, HH)

Agency Response: The exemption for air fresheners that are comprised entirely of fragrance (section 94510(f)) has been included in the regulation because: (a) the fragrance is the "active ingredient" in an air freshener, making reductions in VOC impossible without removing the active ingredients which are essential to the function of the product; and (b) 100 percent fragrance products tend to result in less overall emissions since they do not require solvent VOCs in their formulation. Many of the 100 percent fragrance products consist of an inert substrate to which a small amount of 100 percent fragrance has been added.

237. Comment: Another change in the regulation is the way fragrances are measured, the combined level of 2 percent by weight is unacceptable. These products represent the most offensive and toxic VOC's. The carriers of these fragrances are for the most part VOC's and this exemption would allow these to remain untouched by the regulation (section 94510 (c,j & l)). (EHN, HH)

Agency Response: Section 41712 of the Health and Safety Code requires the Air Resources Board to adopt regulations to achieve the maximum feasible reduction in VOCs emitted by consumer products. These reductions are designed to help attain the ambient air quality standards for ozone and PM-10, as stated in chapter III of the Technical Support Document. The regulations are not designed to address indoor air quality problems or the toxicity of individual volatile organic compounds. Toxic compounds are regulated under a separate process set forth in state law for the identification and control of toxic air contaminants (Health and Safety Code 39650 et seq.). Regarding the "carriers" of fragrances, the definition of "fragrance" has been carefully worded to prevent it from being used as a loophole by adding unnecessary solvent to fragrances.

U. FIFRA Issues

238. Comment: The SDA believes that the effective date of one-year after the Table of Standard compliance date for products registered under FIFRA is insufficient and remains arbitrary. The current time required for state and federal approval of pesticide registration applications requires more time for compliance than the current regulation allows. The SDA proposes modifications to the language of section 94509(d) to address this concern by basing the date of compliance on the time required to obtain federal and state approval of the registration application. (SDA)

Agency Response: The commenter's concerns have been addressed in the responses to Comments 45-47.

V. Miscellaneous Issues

239. Comment: Provisions in Resolution 92-1 direct the ARB staff to consult with consumer product manufacturers subject to Phase II future effective standards and provide the Board biennial reports on the progress of manufacturers in meeting those standards. We urge the Board to extend that provision to Phase I products subject to future effective standards. (CSMA)

Agency Response: The commenter's suggestion is not necessary. For the Phase I rulemaking approved by the Board on October 11, 1990, Resolution 90-60 already directs the Board's Executive Officer to consult with consumer product manufacturers subject to the future effective Phase I standards for hairsprays, single phase aerosol air fresheners, engine degreasers, and nail polish removers. Resolution 90-60 also directs that biennial reports be made to the Board. These provisions cover all the Phase I future effective standards except the standard for glass cleaners, which the Board felt was not necessary to include given the specific factors involved in the regulation of this category. However, it will be the policy of ARB staff in the biennial reports to raise any significant consumer products issue that requires policy direction from the Board, even though there is no formal requirement for staff to do so.

240. Comment: I would like to identify certain products which are toxic and/or carcinogenic VOC's which I think should be emphasized more strongly by the ARB, as far as controlling and limiting their use:

- (a) paradichlorobenzene sublimates directly from crystals into a vapor which is toxic and carcinogenic. It is used as mothballs, urinal and toilet cakes, and various disinfectants.
- (b) phenol and phenol compounds used as disinfectants in portable toilet liquids, toilet cleaners and other disinfectants.

(c) pinesol has some very toxic and flammable volatiles according to their label.

(d) toxic and carcinogenic materials which off-gas from new carpets and carpet glues, including 4-PC and toluene. (RC)

Agency Response: As explained in the responses to Comments 62 and 237, it is beyond the scope of this rulemaking action to address potential toxic effects from compounds used in consumer products.

241. Comment: The 15-day public comment period should be extended. It is very clear from the amount of time allotted for public comment, April 15, 1992 to April 30, 1992, the minimum time allowed by law, that the ARB is intent on not reviewing or revising these amendments based on public comment. Although your local officer Robert Jenne was very cooperative in explaining that many of these proposals were available at the January 9th meeting, why were they not mailed out to the public that had expressed an interest in participating in these hearings, but could not attend. (EHN, HH)

Agency Response: For the following reasons, we believe that 15 days is an appropriate time period to provide comments on the amendments to the consumer products regulation. First, a very ambitious schedule has been set by the Board to implement the requirements of the California Clean Air Act (CCAA). To achieve the emission reductions mandated by the CCAA in a timely manner, all rulemaking actions must be carried out as expeditiously as possible. The ARB policy has therefore been to grant the minimum 15 days for substantive amendments to regulations. However, it is important to note that this 15-day period is in addition to the 45-day comment period provided prior to the Board hearing. Secondly, copies of the amendments proposed by ARB staff were handed out at the January 9, 1992 Board hearing and sent to people who could not attend the Board hearing but specifically asked to have a copy of the proposed version. As a result, the majority of the amendments

were available for review for over three months prior to the start of the 15-day comment period.

W. Ozone-Depleting Compounds

242. Comment: We urge the ARB to remain cognizant of mandatory reformulation efforts to eliminate ozone-depleting compounds such as 1,1,1-trichloroethane from consumer products. We recognize that the ARB has sought to take this into account. However, the industry remains concerned regarding what reformulation technologies will prove to be feasible. (CSMA)

Agency Response: ARB believes that the standards for all product categories are technologically and commercially feasible even considering the phase-out of 1,1,1-trichloroethane (TCA). This issue has been discussed at length in the responses to Comments 79 and 192. The ARB is also committed to monitoring the progress made by the entire industry in reformulating TCA-containing products for compliance. If future information demonstrates the need to revise any of the regulatory standards, appropriate action will be taken at that time.

243. Comment: The word "this" has apparently been inadvertently carried over from an earlier draft of the regulation and should be omitted from section 94509(g) such that it reads:

(g) The requirements of ~~this~~ section 94509(e) shall not...weight of the product. (PG)

Agency Response: The word "this" has been deleted as suggested by the commenter.

X. Registration

244. Comment: It is our interpretation of the revised provisions of section 94513 (Registration) that:

- (a) all products that were reported in the ARB consumer products surveys conducted in 1990 and 1991 will be considered to have already been registered under this section, and will not be required to register again 90 days after the effective date of this section; and
- (b) this registration section affects only those products introduced before the effective date of this section, and is not a continuing requirement to register all new consumer products prior to introduction into commerce in the state of California.

CSMA can support these revised registration provisions only if these interpretations are correct, and the ARB issues a clarification in this regard. (CSMA)

Agency Response: (a) Section 94513 does not provide for an exemption from reporting for manufacturers who have completed the 1990 or 1991 VOC survey. It appears that the commenter is referring to a decision made by ARB staff in 1991, whereby staff determined that those manufacturers which had completed and submitted the 1991 VOC survey (not the 1990 survey) had substantially fulfilled the requirements of section 94513, as that section existed prior to the 1992 Phase II amendments. After the final version of the Phase II amendments are approved by the Office of Administrative Law, ARB staff will determine whether submission of the 1991 survey is adequate to demonstrate substantial compliance with the amended section 94513, and will inform manufacturers of this determination by letter. Naturally, all manufacturers who did not complete the 1991 VOC survey will be expected to supply the registration data as provided in section 94513.

(b) The commenter's interpretation regarding the requirements of section 94513 is partially correct. Section 94513(a) requires only a single "one-time" registration of consumer products. After this initial registration, section 94513(a) does not require manufacturers to report the introduction of new products into California on a continuing basis. However, section

94513(c) allows the Executive Officer to require the reporting of registration data in the future. Since such future requests for data may cover products introduced after the initial registration has been completed, the commenter's statement is not accurate that "... this registration section affects only those products introduced before the effective date of this section ... "

245. Comment: Subsection 94513(c) should be modified further to restrict the collection of registration data to only those product categories appearing in the Table of Standards. Such a modification can allow additions to the list of product categories to be registered, but it should do so only after basic rulemaking procedures have been followed. The current language leaves the Executive Officer with too much unrestricted authority. The Executive Officer should account for input from the affected manufacturers as well as the public on additions to the product categories to be registered since the registration of data is not trivial. Also, this subsection should explicitly state how product categories are to be deleted from the registration requirements and announced. (SDA)

Agency Response: The suggested modifications are not appropriate for the reasons described in the response to Comment 83. It is particularly inappropriate for section 94513(c) to be limited to those product categories that are currently listed in the Table of Standards, since one of the main purposes of section 94513(c) is to provide a mechanism to conduct further research on new product categories that have not been previously investigated, as well as to update information on previously regulated products. Finally, there is no need to state how product categories will be "deleted" from the registration requirements, since section 94513(a), as modified, requires only a "one-time" registration of specified consumer products.

246. Comment: The SDA supports the deletion in subsection 94513(a)(10) of the requirement to report concentrations of Table B and LVP compounds, but this modification does not fully address the SDA's concerns. The SDA

strongly opposes the requirement for reporting the identities of all Table B and LVP compounds in regulated consumer products on a regular basis. To address our concerns, we have suggested to ARB staff that the identification of the Table B and LVP compounds be made only upon request of the Executive Officer. (SDA)

Agency Response: Please refer to the response for Comment 248.

247. Comment: The SDA supports the modifications to subsection 94513(b). However, for the same reasons stated previously for Table B and LVP compounds, this subsection should be modified further. The specific identity and concentration of ozone-depleting compounds should not be required in the registration section. The SDA proposes modifications to the registration language to provide for the submittal of information on ozone-depleting (Table B) compounds only in the aggregate. (SDA)

Agency Response: Please refer to the response for Comment 248.

248. Comment: According to section 94513(a)(10), all Table B and LVP compounds must be identified. We urge the ARB to modify this provision and require this information only on specific request. For the ARB to routinely collect and store this highly sensitive confidential information would not fully address the concerns expressed by several Board members at the January hearing. (CSMA)

Agency Response: The issues raised in Comments 246-248 have been summarized and addressed in the response to Comment 85. With regard to the concerns expressed by Board members at the hearing, ARB staff believes that these concerns were fully addressed by the modifications made to section 94513(a)(9) and (a)(10) that were made available during the first 15-day comment period.

249. Comment: Section 94513(c) states that, "upon 90 days written notice, the Executive Officer may also require a manufacturer to supply the

registration data listed in section 94513(a) for any consumer product that the Executive Officer may specify." We believe that this provision should at least be limited to those categories of products currently in the Table of Standards. Data on additional product categories should be collected using the ARB's data collection authority, and opportunity given for public comment regarding the definitions of those categories. (CSMA)

Agency Response: The issues raised by the commenter have been addressed in the response to Comment 83.

250. Comment: The SDA supports the deletion of the requirement for repeated registrations at three year intervals. Further, it is the SDA's understanding that the ARB intends to follow through on a previous commitment not to require products surveyed in 1991 to be registered under section 94513. The SDA recommends that this be incorporated into the modified text of the regulation. (SDA)

Agency Response: As noted by the commenter, section 94513(a) has been modified to remove the requirement for registrations at three year intervals. However, the ARB has not yet made a "commitment" to accept 1991 VOC survey data as fulfilling all the requirements of the modified section 94513. As explained in the response to Comment 244 it is not appropriate to make this decision until the final version of section 94513 is approved by the Office of Administrative Law.

251. Comment: The term "percent-by-weight" is defined in the regulation in section 94508(67). Yet, in section 94513 in three places, the term "weight percent" is used. Although these terms are understood by chemists to be equivalent, we urge the ARB to use consistent terminology throughout the regulation. Since the term "percent-by-weight" is specifically defined, we recommend the substitution of that term for the term "weight percent" in section 94513(a). (CTFA)

Agency Response: As the commenter points out, it is understood in the scientific community that "weight-percent" and "percent-by-weight" mean exactly the same thing. For the sake of clarity however, the nonsubstantial grammatical changes suggested by the commenter have been made to section 94513(a).

252. Comment: Regarding the general provision in section 94513(a), we support deleting the requirement to re-register all products in the regulated categories every three years. The proposed approach of requiring the submissions of data to the Executive Officer upon request (per section 94513(c)) is more sensible than a wholesale re-registration. As a result, the ARB will be relieved of the burden of collecting and protecting huge volumes of data, much of which is confidential, and industry will avoid the burden of routine data submissions, much of which may be out of date, unwanted and unusable. (PG)

Agency Response: We agree that the proposed modifications are appropriate and will minimize the burden on industry.

253. Comment: We recommend deleting section 94513(a)(10), but moving its provision for requiring the identification of certain formula components to section 94513(c) such that it reads as follows:

- (c) Upon 90 days written notice, the Executive Officer may also require any manufacturer to supply all or part of the registration data listed in section 94513(a), plus the specific chemical name and associated Chemical Abstract Services (CAS) number of each Table B Compound and LVP Compound that is not a fragrance found in for any consumer product or products subject to section 94513(a) that the Executive Officer may specify.

We recommend these changes for the following reasons:

- (a) the identity of formula components is extremely sensitive information and is often not even shared within a manufacturer's organization except on a need to know basis. This is especially true for components of products newly introduced into the marketplace. Under proposed section 94513(a) and in light of the ARB's commitment not to require re-registration of products reported in the ARB 1991 VOC survey, it is only the new product entries which would be required to submit Table B and LVP Compound identities.
- (b) we do not object to providing certain chemical identity information when the ARB has demonstrated a need for it and when it will be handled in an appropriately confidential manner. However, we strenuously object to the automatic collection of such sensitive data without a specific, immediate need, when the information will only be warehoused and be put at risk of an inadvertent disclosure.
- (c) it would be entirely consistent with the sentiments of Chairwoman Sharpless at the 1/1/92 Board hearing when she expressed concern about maintaining the confidentiality of this kind of information.
- (d) the change would be authorized by Resolution 92-1, which states the Executive Officer "shall make modifications as may be appropriate in light of the comments received" on the proposed regulation.
- (e) it would be scientifically justified since the data used at any given time would be more current and accurate at that time.
- (f) industry would not be required to submit data on products in which the ARB does not have an immediate interest and then would submit only the data the Executive Officer requested. The ARB

would not need to collect, store and protect the confidentiality of information for which it does not have an immediate need, yet would have access to such information when required. (PG, SDA)

Agency Response: Comments which addressed the same concerns have been summarized and addressed in the responses to Comments 83, 85, 244, and 248. As explained in these responses, we believe that the collection of Table B and LVP compound data is necessary for the ARB to fulfill its responsibilities. Furthermore, moving the language in section 94513(a)(10) to section 94513(c), as suggested by the commenter, is not appropriate. This change would simply require the ARB to specifically request data that the ARB has already determined to be necessary; this is why section 94513(a)(10) requires this data to be submitted in the first place. Finally, confidential consumer product data is safely kept in locked rooms and file cabinets at the ARB. Storage of this data does not represent a significant administrative burden. Based on past ARB experience with prior surveys, collection and organization of this data is such a long, drawn-out process that it is administratively preferable to require the data now and have it available for later analysis. While data collected at any particular point in time will eventually become outdated, it is still necessary for the ARB to have the data as soon as possible to serve as "baseline" data in tracking formulation and emissions trends, and to allow the ARB Compliance Division to understand enough about the general composition of each product category to facilitate efficient product testing and enforcement of the regulations.

254. Comment: The identification of Table B and LVP compounds in the product registration (section 94513) should be made only upon request of the Executive Officer. This is because of the following concerns:

- (a) the intent of the registration requirement is that products which responded to the 1991 survey would not be required to register their products, unless required in the future by a request from the Executive Officer pursuant to 94513(c). This is despite the

fact that the 1991 survey did not require the identification of the Table B and the LVP compounds. Under this intent, the only products that would have to be registered are new products. It is inappropriate that the effect of the regulation would be to require the reevaluation of all new products in the regulated product categories.

- (b) the need for Table B and LVP compound information in compliance determination is limited to a specific product at a specific time. This need does not justify the collection of such information from all manufacturers. In addition, manufacturers may reformulate their product and change the Table B and LVP compound compositions of their products, making the registration data for such composition outdated to assist compliance determination. (LM)

Agency Response: The issues raised in this comment are addressed in the response to the previous comment.

Y. "Sell-Through" Period

255. Comment: CSMA remains concerned regarding the still limited sell-through provisions provided. It is the small manufacturers, retailers and distributors, and not always the major brand names, that are most adversely affected by a short sell-through period, and these small companies have the least resources for engaging in extensive product recalls and redistribution programs. (CSMA)

256. Comment: The 18-month sell-through limitation would require an unnecessary recall of products, because wholesale distributors and retailers would not be able to sell all of the existing inventory produced prior to the compliance date. (CSMA)

257. Comment: The SDA supports the modification for an 18-month sell-through period and the modification to make it applicable to products manufactured prior to both the initial effective date of the regulation and any future effective dates for product categories. (SDA)

258. Comment: We support the ARB's decision to extend the sell-through period from 12 to 18 months although empirical data submitted by CTFA and CSMA clearly established that many consumer products do remain on retail shelves for much longer than 18 months after their date of manufacture. Small businesses, both manufacturers and retailers, will bear the greatest cost from unnecessary and unrealistic restrictions on the ability to continue to sell products that were legally manufactured and placed in the distribution chain prior to the effective date of the ARB's VOC limits for those products. We support the ARB's efforts to reduce that burden. (CTFA)

259. Comment: We support the extension of the sell-through period from 12 to 18 months and the clarification of its applicability to future standards. But we continue to believe the best way to apply the VOC standards to regulated products is to base the prohibition against sale of noncomplying products on the date on which the products were manufactured. This would be the simplest and least burdensome approach and would be easily enforceable given the requirement to code date products (section 94512(b)). (PG)

Agency Response: The "sell-through" issues raised in Comments 255 to 259 have been thoroughly discussed in the responses to Comments 86 to 100.

Z. Test Methods

260. Comment: The SDA supports the modification to section 94515(b) which allows production records to be used to determine compliance with the regulation. The SDA also supports the deletion of language that would have allowed analytical test results to take precedence over production records in determining compliance. However, section 94515 should be further modified to explicitly allow the use of equivalent or more accurate test

methods and should provide for adjustment of the test results to account for exempt VOCs. (SDA)

Agency Response: The issues raised in this comment have been addressed in the responses to Comments 113-118.

261. Comment: Although the modified section 94515 contains language that provides some flexibility regarding the use of test methods, the modifications appear to leave open the option for the Executive Officer to disapprove alternative test methods that have been shown to his/her satisfaction to accurately determine the concentration of nonexempt VOCs in a product or the product's emissions. Disapproval of such test methods would be unreasonable given the effort in demonstrating their accuracy. Any method shown to be more accurate in determining VOC content or emissions should take precedence over all other methods. It is recommended that this be explicitly stated in the regulation. (SDA)

Agency Response: The issues raised by the commenter are addressed in the response to Comment 118. To briefly summarize, it would be inappropriate for an alternative test method to take precedence over all other approved alternative methods, since other alternative test methods approved by the Executive Officer may provide distinct advantages to manufacturers or the ARB. For example, one alternative test may be easier to use, less costly, less hazardous, or have other advantages over another approved method. Moreover, several manufacturers have stated that the test methods they use to determine VOC contents are confidential information. Requiring the use of one alternative method to the exclusion of all other methods may inappropriately infringe on the confidentiality rights of the party which submitted the alternative method for approval. Such possibilities make it inappropriate for the Executive Officer to require the use of only one alternative method and exclude the use of all others.

262. Comment: According to comments by Mr. Morgester at the July 16, 1991 workshop, the ARB's Compliance Division intends to rely exclusively on the

test methods listed in section 94515(a) in determining compliance with the regulation. Although the language of the regulation has since been modified to delete the requirement that test results take precedence over production records, the SDA is still concerned that test results could take precedence over production records. The SDA's concerns would be allayed if the regulation is modified to explicitly state that data collected from production records, a much more reliable method of measurement, takes precedence over results obtained in tests using the methods in subsection (a). (SDA)

Agency Response: While the ARB prefers to rely solely on test results, it is common practice for regulatory agencies to rely on combinations of both analytical test results and production records when the use of test methods alone may not provide an accurate determination of compliance. Accordingly, the previous language giving precedence of analytical test results over production records has been deleted to account for possible situations when the test methods may not give accurate results. On the other hand, it would be inappropriate to give precedence to production records over test results at all times and under all conditions. Some of the reasons for not giving precedence to production records are stated in ARB staff's responses to Comments 114-116 and 118.

263. Comment: There should be a regulatory framework established in section 94515 for reconciling differences between the specific VOCs regulated under Section 94509 (exclusive of compounds exempted under section 94510) and measurements made using the cited test methods. It is likely that the cited test methods will under- or overestimate the VOC content in certain products. Therefore, compliance with the regulation cannot be determined solely on the basis of analytical measurements. The opportunity must be provided for a manufacturer to submit evidence regarding the presence of exempted VOCs in a product that would be expected to be included in analytical measurements by the ARB. (SDA)

Agency Response: We do not believe it is feasible or necessary to establish a rigid regulatory framework for reconciling possible differences between reported and analyzed VOC contents. As stated in the response to Comment 114, there may be hundreds of possible explanations for such discrepancies, making the establishment of a rigid reconciliatory framework infeasible. We believe it is more appropriate to allow explanations of possible differences on a case-by-case basis. We also believe that implementing the commenter's suggestion is unnecessary because, if a manufacturer does not agree with an the ARB's contention that a violation of the regulation has occurred, the manufacturer can simply refuse to settle the matter and allow it to be resolved by the courts, which are well equipped to resolve conflicting claims of this nature.

264. Comment: To address the SDA's concerns discussed previously, the SDA recommends the following modifications to section 94513:

- (a) insert "to the satisfaction of the Executive Officer" prior to "to accurately determine..." in subsection (a), line 9
- (b) insert "nonexempt" prior to "VOCs" in subsection (a), line 10
- (c) delete "upon approval of the Executive Officer" in subsection (a), lines 9-10 and replace with "to determine compliance."
- (d) insert a new subsection (b) to read as follows:

"In determining compliance with this article, the Executive Officer shall adjust test results to exclude exempted VOCs contained in a product or its emissions which are included in the results of analytical test measurements made of the product."

- (e) change previous subsection (b) to (c) and add at the end of the subsection "Testing for compliance through calculations based on the records specified in this subsection takes precedence over

analytical results obtained using the methods listed under subsection (a)." (SDA)

Agency Response: The commenter's suggestions have all been addressed in the responses to the previous four comments. Briefly, the suggested language in (a) and (c) is unnecessary since it is implicit in section 94515(a) that an alternative method that is approved for use by the Executive Officer has already been demonstrated to his or her satisfaction to accurately determine the concentration of VOCs in a product. These comments were addressed at length in ARB staff's responses to Comments 118 and 261. The suggested language in (b) is also unnecessary since the definition for "Percent by Weight" already subtracts nonexempt VOCs from the determination of VOCs which are subject to the standards. Comment (d) is a variation of (b), which has already been addressed. As for the suggested language in (e), we believe it is inappropriate to give precedence to production records over test results, as discussed at length in ARB staff's responses to Comments 114-116, and 118.

AA. Variances

265. Comment: Please enter into public record this request that I (Susan R. Molloy) or other Parties responsible to the Environmental Health Network be notified of any hearings on requests for variances for the Consumer Products regulation. (EHN)

Agency Response: Section 94514(b) (Variances) states that notice of a variance hearing shall be sent to every person who requests such notice, not less than 30 days prior to the hearing. The Environmental Health Network will be added to the mailing list that is being created pursuant to section 94514(b).

BB. VOC Survey

266. Comment: The ARB should make available to industry survey data on Phase I products. We believe that some of the Phase I standards should be revisited, and this cannot be accomplished until this data is made available. (CSMA)

Agency Response: The commenters concern is addressed in the response to Comment 69.

CC. Comments on Specific Categories of Consumer Products

Aerosol Cooking Sprays

267. Comment: The VOC limit for aerosol cooking sprays should not be set at 18 percent for the following reasons:

- (a) the reduction in hydrocarbon propellants necessary to meet the 18 percent limit cannot be achieved without reducing efficacy and incurring consumer dissatisfaction because of incomplete expulsion and poor aerosolization of the product. Also, there are no FDA-food-approved alternatives to hydrocarbon propellants that yield effective cooking sprays;
- (b) for products containing alcohol, a reduction in alcohol would make the amount of lecithin in the current serving size inadequate, forcing consumers to use more of the product, with the attendant increase in VOC emissions;
- (c) industry submitted data shows that consumer acceptance of low-VOC cooking sprays is problematic, and that the efficacy of baking-pan-release spray is lowered;
- (d) the emissions from aerosol cooking sprays represent an extremely minor contribution to VOC emissions in California at 0.70 tons per day. The small reductions anticipated might not even be

achieved if consumers use more of the less efficacious products;
and

- (e) the inability of our industry to market products with sufficient consumer acceptance could result in an unhealthful increase in the dietary fat intake of consumers in California. (CSMA)

Agency Response: The issues raised in this comment have already been thoroughly discussed in the responses to Comments 120, 123, and 127. Regarding the commenter's assertion that consumers will use more of less "efficacious" products, there is no basis to support this assertion due to the lack of quantifiable, uniform industry standards for testing food release characteristics for aerosol cooking sprays. As explained in response to Comment 120(a), a range of complying formulations comprise almost 50 percent of the market for aerosol cooking sprays. This indicates that consumers are satisfied with the various choices of formulations and that these formulations have the desired performance characteristics.

Automotive Brake Cleaners

268. Comment: The following concerns were raised regarding industry's ability to comply with the 50 percent VOC standard for automotive brake cleaners:

- (a) the removal of glaze from brake linings requires a strong solvent. Water-dilutable alcohol solutions do not provide sufficient efficacy, nor do emulsion cleaners.
- (b) water systems are not only slow drying, but can cause increased rust on critical brake parts which can become a hazard. In addition water-based formulations may leave surfactant or other residues on the brake parts, which could create loss of brake function upon rewetting.

- (c) there is no evidence that the proposed 50 percent standard could be achieved by any means other than through the continued usage of 1,1,1-trichloroethane as the primary solvent in these products. Virtually all of those products reporting low percent VOC contents in the 1991 ARB survey contain 1,1,1-trichloroethane. Research efforts are now underway within our industry to develop new brake cleaner formulations that are both safe and effective, but the outcome is uncertain.
- (d) household solvents such as gasoline or other available solvents may be used in the event brake cleaners are not available, leading to unsafe practices and increased VOC emissions.
- (e) the safety of millions of California drivers, as well as thousands of service personnel and consumers, must be carefully considered. (CSMA)

Agency Response: Comments which addressed the same concerns were received during the 45-day comment period and have been summarized and addressed in the responses to Comments 131, 133-135, 136, 138, and 139.

Carburetor-Choke Cleaners

269. Comment: CSMA supports the deletion of the 50 percent future-effective standard for carburetor-choke cleaners, but remains concerned regarding the 75 percent limitation retained for 1/1/95. We urge the ARB to defer this category until our industry's research and development efforts can develop safe and effective products without the use of 1,1,1-trichloroethane, and determine how VOC emissions from the use of carburetor cleaners can be further reduced. (CSMA)

Agency Response: This comment has been addressed in the response to Comment 158.

Charcoal Lighter Material

270. Comment: The process for developing post-certification enforcement test methods for instant charcoal lighting products should begin immediately since the compliance date for these products is January 1, 1993. (CC)

Agency Response: ARB staff has already made arrangements with the commenter and other interested parties to discuss any alternative post-certification enforcement test methods they believe to be appropriate. As provided in section 94515(a), such alternative test methods may be used to determine compliance upon approval of the Executive Officer.

271. Comment: The 15-day comment period version of the Phase II regulation appears to have an error since it still shows a 12-month sell-through period for charcoal lighter materials. (CC)

Agency Response: The commenter is correct that an error was made. To correct the error, section 94509(h) was modified to provide an 18-month "sell-through" period for charcoal lighter material products. This modification was made available to the public for a 15-day comment period commencing August 17, 1992. It should also be noted that the 18-month "sell-through" period is not applicable to products sold, supplied, or offered for sale within the South Coast Air Quality Management District (SCAQMD), in order to be consistent with the provisions of SCAQMD Rule 1174.

272. Comment: There does not seem to be adequate data to support the standard of 0.020 pound of VOC per start for charcoal lighter material. In addition, some fundamental steps in the development of the standard for charcoal lighter products seem to have been missed. Limits for the other regulated consumer products were based on the survey which showed the range of VOC contents in available products. The survey identified 23 lighter fluids sold in California but did not identify the emissions from these products. The SCAQMD's list of certified products only includes two lighter

fluids and they are both new products which were not covered in the survey.
(CC)

Agency Response: We do not agree with the points the commenter has made. The standard is adequately supported by the information contained in the Technical Support Document. Further support is also provided by the fact that, at the time of the Board hearing, 11 products had already been certified by the SCAQMD staff as being able to meet an emissions level of 0.020 pound VOC per start. As stated by the commenter, this list of 11 certified products included 2 certified charcoal lighter fluids. In fact, it is important to note that, of the two charcoal lighter fluids included in the list of certified products, one was certified by and is currently being manufactured by Clorox, the company which is represented by the commenter. Clearly, the SCAQMD's experience with these products demonstrates that charcoal lighter materials can be produced which meets the 0.020 standard. Therefore, there is no question that the standard is technologically and commercially feasible.

We also disagree with the commenter's contention that some fundamental steps were missed in the development of the 0.020 standard. The commenter is correct in stating that no product which meets the VOC emissions standard of 0.020 pound VOC per start was identified in the 1991 survey. However, the survey is not the only source of information relied on by the ARB staff in setting the standard. Both the Clorox Company (makers of Kingsford Lighter products) and the SCAQMD provided information as the 1991 survey was being conducted which strongly suggested that the standard of 0.020 pound per start could be met. As the record shows, the Clorox company and other manufacturers were able to produce 11 products which meet the standard. These products were certified by the SCAQMD prior to the Board hearing of January 9, 1992 and prior to the SCAQMD's compliance date of January 1, 1992. Moreover, an additional 19 products have been certified since the January 9, 1992 Board hearing. Thus, it is clear that important steps were not missed in developing and supporting the standard of 0.020 pound of VOC per start and demonstrating its commercial and technological feasibility.

Insecticides

273. Comment: A request is made for clarifications on matters discussed between Mr. Dean Simeroth of the ARB and Ms. Peggy Tilka of the Chevron Chemical Company at the January 9, 1992 Board meeting. Clarification is sought regarding whether documentations of insecticide registration approvals that exceed one year would be sufficient evidence for ARB staff to amend the time allowance for compliance with the standards of "insecticide" products. In addition, clarification is sought regarding whether "blanket" allowance would be granted to all FIFRA products, and not on a product by product basis, when ARB staff decides to extend the time allowance for compliance with the standards. (CCCO)

Agency Response: As explained in the responses to Comments 45-47 the ARB believes that adequate time has been allowed for both FIFRA products in general and insecticides in particular. ARB staff certainly remains open to considering any additional information that industry may submit in the future. However, without carefully evaluating all submitted information, staff cannot commit in advance to making specific regulatory changes.

Personal Fragrance Products

274. Comment: With respect to personal fragrance products, we support the changes to the proposed regulation that allows an ethanol exemption for personal fragrance products and "products in development". This change is essential to the commercial and technological feasibility of these regulations. (CTFA)

Agency Response: The regulation does not contain an ethanol exemption for personal fragrance products. Assuming the commenter is referring to the exemption for "existing personal fragrance products", and "products in development", under section 94510(h), this exemption was provided to allow the unique scent and characteristics of existing products to be retained. A

detailed explanation of the modifications made to the exemption can be found in section III.A(3) of this Final Statement of Reasons.

275. Comment: We believe the decision to regulate by percentage of fragrance content rather than by product subcategory (i.e. cologne, toilet water, etc.) with an exemption for such fragrance from the VOC standards in section 94509(a) is sound and results in more reasonable goals for formulating these products and a more easily enforced regulation for the ARB without sacrificing significant reductions in VOC emissions. (CTFA)

Agency Response: We agree that regulating personal fragrance products based on the percentage of fragrance rather than by product subcategories will result in a regulation that has the advantages listed by the commenter.

Comments on the Antiperspirants and Deodorants Regulation

DD. Definitions

276. Comment: We support the modification made to the definition of "Volatile Organic Compounds" in section 94501(n) making it consistent with the VOC definition in the Phase II regulation by adding compounds to the exemption statement which the U.S. EPA has recently determined not to be photochemically reactive. We encourage the ARB to continue to amend this definition to maintain consistency with federal regulations. (PG)

Agency Response: ARB staff monitors amendments made to the definition of VOC by EPA and will consider further modifications to section 94501(n) when consistent with California's clean air goals.

EE. "Sell-Through" Period

277. Comment: We support the ARB's extension of the 18-month sell-through period to the antiperspirants and deodorants regulation. However, as with the other regulated consumer products, we believe the best way to apply the

VOC standards for antiperspirants and deodorants is to base the prohibition against sale of noncomplying products on the date on which the products were manufactured. This remains the simplest, least burdensome and easily enforceable approach given the requirement to code date products. (CTFA)

Agency Response: As explained in the responses to Comments 86 to 90, an 18-month sell-through period is adequate and the use of the date of manufacture is not appropriate for the consumer products regulation. The same rationale applies to the provisions of the antiperspirant and deodorant regulation.

FF. Variances

278. Comment: Please enter into the public record this request that I (Susan R. Molloy) or other Parties responsible to the Environmental Health Network be notified of any hearings on requests for variances for the Antiperspirants and Deodorant regulation. (EHN)

Agency Response: As explained in the response to Comment 265, the commenter's name will be added to the ARB mailing list for variance hearings on the antiperspirant and deodorant regulation.

RESPONSE TO COMMENT RECEIVED DURING THE SECOND 15-DAY COMMENT PERIOD

The second 15-day notice for this rulemaking action (Supplemental Notice of Public Availability of Modified Text) described several modifications that were made to the text of the regulations, and stated that ARB staff had added certain additional documents to the rulemaking record. The notice also stated that the Executive Officer would consider only comments relating to the supplemental changes or the additional documents. Three comment letters were received during the second 15-day comment period (August 17 to September 1, 1992). These letters contained no comments relating to the supplemental changes. However, one comment was received

regarding the additional documents that were added to the rulemaking record. This comment is summarized and responded to below.

279. Comment: We do not agree with the ARB's proposed last-minute additions to the record. Health and Safety Code section 41712(b) provides that no consumer product regulation shall be adopted unless that regulation is found to be necessary. This requirement places a responsibility on the ARB to conduct a comprehensive evaluation of the necessity of the regulation prior to approval. Since the ARB approved the regulation on January 9, 1992, any information supporting a finding of necessity should have been reviewed and analyzed prior to that date. Thus the contents of the record that support a finding of necessity should also have been finalized by the ARB prior to January 9, 1992. These late additions to the Record are obviously an attempt by the ARB to strengthen the record with regard to necessity, which suggests that the ARB did not perform the requisite level of diligence as to necessity prior to January 9, 1992. Moreover, inadequate time was provided to review this voluminous addition. (TAG)

Agency Response: The Staff Report and Technical Support Document, which were made available to the public at the beginning of the 45-day comment period, describe the basis for the ARB's conclusion that the regulation is necessary (see also the response to Comments 226, 227, 229, and 230 for a detailed discussion of necessity issues). We believe that this information alone provides a more than adequate basis for concluding that the regulation is "necessary" within the meaning of Health and Safety Code section 41712(b).

However, comments were received during the first 15-day comment period which inaccurately suggested that the ARB has simply "assumed" that emission reductions from the regulation are necessary. It was also essentially argued that the record for this rulemaking action contained insufficient factual detail to support the analysis made in the Staff Report and Technical Support Document. In response to these comments, staff decided to include in the administrative record several air quality attainment plans

which contain more details explaining the air quality situation in the four largest urban areas in California, and the need for emission reductions in order to attain the state and federal ambient air quality standards. The factual information set forth in these plans is widely known by professionals in the air quality field, and ARB staff was well aware of this information during the development of the consumer products regulation. In fact, a number of ARB staff members devote much of their time to assisting the districts in developing attainment plans, and evaluating both draft and final versions of these plans prior to their consideration by the Board pursuant to Health and Safety Code sections 41502-41503.5.

Furthermore, the commenter is confused about the sequence of events that occurred in this rulemaking action. The commenter implies that the regulation was adopted at the January 9, 1992 Board hearing. This is not correct. At the January 9, 1992 public hearing, the Board approved Resolution 92-1, which includes the following language (see page 3 of the Resolution; similar "boilerplate" language is contained in nearly all Board Resolutions in which 15-day changes are proposed):

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the amendments to Title 17, California Code of Regulations, sections 94503.5, 94506, 94507-94513, and 94515, as set forth in Attachment A hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt the amendments set forth in Attachment A after making them available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted. (emphasis added)

The procedure described in these paragraphs is specifically authorized by Health and Safety Code sections 39515 and 39516, and has been used for many years in ARB rulemaking actions. Under this standard Board procedure, final agency action to adopt regulations does not occur until an Executive Order is signed by the Board's Executive Officer. In this Phase II consumer products rulemaking, the regulations were adopted in September 1992 when Executive Order #G-774 was signed. This procedure is necessary in cases where there are 15-day changes, in order to provide a way for the ARB to meaningfully consider all public comments and decide if changes should be made. An example of how the process works can be seen in this rulemaking action, in which the Executive Officer decided that several additional changes were needed to respond to comments received during the first 15-day comment period. The proposed changes were therefore made available for public comment during the second 15-day comment period, and the regulations were subsequently adopted by the Executive Officer.

Finally, the commenter has stated that inadequate time was provided for public review of the additions to the record. The additions to the record consist of four air quality attainment plans that have been adopted by air pollution control and air quality management districts pursuant to the requirements of the California Clean Air Act (see Health and Safety Code section 41910 et seq.). Each of these plans was adopted after a noticed public hearing. Draft and final versions of these plans have been publicly available for months, and have been the subject of widespread media publicity. The development of each plan was also a long process in which numerous workshops and extensive consultations took place with affected parties. We believe that the development and adoption of these plans has provided many opportunities for public involvement, and that it is not necessary to provide more than a 15 day period to comment on this material.