State of California

AIR RESOURCES BOARD

Final Statement of Reasons for Rulemaking,
Including Summary of Comments and Agency Responses

PUBLIC HEARING TO CONSIDER THE ADOPTION OF A STATEWIDE REGULATION TO REDUCE VOLATILE ORGANIC COMPOUND EMISSIONS FROM CONSUMER PRODUCTS

Scheduled for Consideration: October 11, 1990

Agenda Item No.: 90-16-1

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TABLE OF CONTENTS

Contents | Page

I. INTRODUCTION.....5

II. GENERAL RATIONALE FOR THE REGULATION.....7

III. MODIFICATIONS TO THE REGULATION.....9

A. Modifications approved by the Air Resources Board at the October 11, 1990 public hearing

1. Section 94508.....9

2. Section 94509(a).....9

Section 94509(b).....9

Section 94509(d).....10

Section 94509(e).....10

3. Section 94510.....10

4. Section 94511.....10

5. Section 94512.....11

6. Section 94513.....11

7. Section 94515.....11

8. Section 94517.....11

B. Modifications approved by the Air Resources Board at the October 11, 1990 public hearing for the antiperspirants and deodorants regulation

1. Section 94503.5.....12

2. Section 94504.....12

3. Section 94506.....12

4. Section 94506.5.....12

IV. SUMMARY OF COMMENTS AND AGENCY RESPONSES.....13

45-Day Period Comments

A. Economic Impacts of the Regulation.....16

B. Emissions and Air Quality Impacts.....19

C. Technological and Commercial Feasibility.....25

D. VOC Survey.....30

E. Exemptions.....31

F. FIFRA Issues.....36

G. Confidentiality Issues.....37

H. "Sell-Through Period".....38

I. "Down the Drain" Issues.....40

J. Innovative Products.....42

(1) Efficacy of Innovative Products
(2) Public Hearing Requirement
(3) Innovative Product Issues

K. Product Registration.....54

L. Test Methods.....56

M. Miscellaneous.....57

N. Comments on Specific Categories of Consumer Products.....62

Air Fresheners.....62
Automotive Windshield Washer Fluids.....66
Bathroom and Tile Cleaners.....66
Engine Degreasers.....67
Furniture Maintenance Products.....68
General Purpose Cleaners.....69
Glass Cleaners.....69
Hairsprays.....70
Insect repellents.....72
Laundry Prewashes.....72
Nail Polish Removers.....73

O. Dual Purpose Air Freshener/Disinfectants.....73

<u>15-Day Period Comments</u>

P. Exemptions.....92

Q. Ozone-Depleting Compounds.....94

R. Product Registration.....94

S. Test Methods.....95

T. Miscellaneous.....95

U. Innovative Products and Federal Enforceability.....97

V. Comments on Specific Categories of Consumer Products.....99

Bathroom and Tile Cleaners.....99
Furniture Maintenance Products.....100
Glass Cleaners.....100
Laundry Prewashes.....102
Antiperspirant Regulation.....103

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I. INTRODUCTION

On October 11, 1990, the Air Resources Board (the "Board" or "ARB") conducted a public hearing to consider the adoption of a regulation to reduce the volatile organic compound (VOC) emissions from consumer products (the statewide "consumer products" regulation; Title 17, California Code of Regulations (CCR), sections 94507-94517) and to amend the antiperspirants and deodorants regulation approved by the Board on November 8, 1989 (the "antiperspirant" regulation; Title 17, CCR, sections 94500-94506.5). The proposed consumer products regulation sets forth a Table of Standards which specifies the allowable VOC content of consumer products within specified time periods, and imposes other regulatory requirements. The amendments to the antiperspirant regulation were made in order to make the provisions of the antiperspirant regulation consistent with the consumer products regulation.

At the hearing, the Board adopted Resolution 90-60, in which the Board approved the consumer products regulation and the amendments to the antiperspirant regulation. The adopted regulations will be contained in Title 17, California Code of Regulations (CCR), sections 94500-94517.

The regulations approved by the Board included various modifications from the text originally proposed by staff in the hearing notice dated August 14, 1990. Most of these changes were based on modifications suggested by staff at the October 11, 1990 hearing. The modified regulations were made available to the public for a 15-day comment period from December 13, 1990 to December 28, 1990 pursuant to Government Code Section 11346.8(c). The "Notice of Availability of Modified Text" together with a copy of the full text of the regulations with the modifications clearly indicated was mailed December 13, 1990 to each of the individuals described in subsections (a)(1) through (4) of Section 44, Title 1, CCR. All modifications made to the regulations are discussed in detail in Section III of this Final Statement of Reasons.

A Staff Report was prepared which constitutes the Initial Statement of Reasons for the proposed rulemaking. This Staff Report was released August 14, 1990. On the same date, the staff released a Technical Support Document ("TSD"). The Staff Report and Technical Support Document are incorporated herein by reference. This Final Statement of Reasons updates these documents by identifying and explaining the rationale for the modifications made to the originally proposed texts. The Final Statement of Reasons also contains a summary of comments received during the formal rulemaking process and the ARB's responses to these comments.

The Board has determined that the proposed action will not create costs or savings, as defined in Government Code Section 11346.5(a)(6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with Section 17500 of Division 4 of the Government Code), or other nondiscretionary savings to local agencies.

In developing the proposal, the staff considered the potential cost impact of the proposed amendment on private persons or businesses directly affected. The Board anticipates that the proposed regulatory changes in the aggregate will not cause any significant increased costs for such persons or businesses. The Board determined that the proposed regulatory changes will not have a significant adverse economic impact on small businesses. The Board has further determined that no alternative was presented or considered which would be more effective in carrying out the purpose for which the regulation was proposed or which would be as effective and less burdensome to affected persons than the adopted regulations.

The following documents are incorporated by reference in the regulation in Section 94515(a), Title 17, CCR:

(1) EPA Method 24-24A, Part 60, Title 40, Code of Federal Regulations, Appendix A, July 1, 1988;

(2) EPA Method 18, Federal Register 48, no. 202, October 18, 1983;

(3) Method 1400, NIOSH Manual of Analytical Methods, Volume 1, February 1984;

(4) EPA Method 8240 "GC/MS Method for Volatile Organics", September 1986.

These four documents were incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to print them in the CCR. The documents are complicated and lengthy test methods that would add unnecessary additional volume to a complex regulation. As the interested audience for these documents is small (primary laboratories who formulate and test consumer products), distribution to all recipients of the CCR is not needed. Furthermore, it has been a longstanding and accepted practice for the ARB to incorporate test methods by reference, and the affected public is accustomed to this format (see e.g., Title 17, CCR, Sections 94000-94004 and 94101-94140). The same four documents listed above were also incorporated by reference in the Board's antiperspirant regulation (Title 17, CCR, Section 94506; approved by OAL on January 28, 1991).

The aforementioned documents were made available in the context of the subject rulemaking in the manner specified in Government Code Section 11364.7, and will continue to be made available by the ARB upon request. In addition, the above-referenced sections of the Federal Register and Code of Federal Regulations identify the incorporated documents (1) and (2) by title and date. The Federal Register and Code of Federal Regulations are published by the Office of the Federal Register, National Archives and Records Administration, and are therefore available to the affected public from a commonly known source. Copies of documents (3) and (4), while also readily available from NIOSH (National Institute of Occupational Safety and Health) and the EPA, are included with this rulemaking package for ease of reference.

II. GENERAL RATIONALE FOR THE REGULATION

The Staff Report and the Technical Support Document set forth the rationale for the regulations. This section of the Final Statement of Reasons briefly summarizes the general rationale.

In 1988, the Legislature enacted the California Clean Air Act of 1988 (the "Act", Stats. 1988, Chapter 1568) to address the air pollution problems of California. The federal ambient air quality standard for ozone is exceeded in nine of the state's 14 air basins, and the more stringent state ozone standard is exceeded in 10 air basins. It has been estimated that 75 percent of the nation's health risk from exposure to ozone occurs in California. In 1989, the federal ozone standard was exceeded on 157 days in the South Coast Air Basin, which includes the most populated metropolitan areas of Los Angeles and Orange Counties. The state PM10 standard is violated in virtually the entire state. In the Act, the Legislature declared that attainment of the Board's health-based air quality standards is necessary to protect public health, particularly of children, older people, and those with respiratory diseases. The Legislature also directed that these standards be attained by the earliest practicable date.

Section 41712 directs the Board to adopt regulations to achieve the maximum feasible reduction in reactive organic compounds emitted by consumer products, if the Board determines that adequate data exists for it to adopt the regulations, and if the regulations are technologically and commercially feasible and necessary. In enacting Section 41712, the Legislature gave the Board clear new authority to control emissions from consumer products, an area that had previously been subject to very few regulations. The proposed regulation represents the effort by the Board to control emissions from consumer products.

As mentioned previously, the use of consumer products results in volatile organic compound emissions, which in the aggregate, contribute significantly to California's air quality problems. Consumer products are widely distributed goods that contain varying quantities of volatile organic compounds (VOCs). The use of consumer products results in VOC emissions which, in the aggregate, contribute significantly to California's serious air quality problems in which ozone and PM10 are the most intractable. VOCs are precursors to both ozone and PM10, which are formed through complex reactions of nitrogen oxides and VOCs in sunlight. Ozone and PM10 are both strong respiratory irritants and impair the normal functioning of the lungs.

The Board's current emission inventory indicates that VOC emissions from all consumer products are approximately 250 tons per day in California. This amount represents approximately 30 percent of all VOC emissions from all solvent use sources in California. California has a large and growing air quality problem. Traditionally, the ARB has concentrated its efforts on controlling motor vehicles and large industrial sources of air pollution, thereby neglecting such smaller sources as consumer products. As California's population has grown, the emissions from consumer products have also grown substantially.

We are now approaching the technological limits for achieving emissions reductions from motor vehicles and large industrial sources, yet California's air quality problem is still very serious. For this reason, the ARB can no longer afford to ignore controls on consumer products; especially since controlling these consumer products is in the same range of cost-effectiveness as other VOC measures that the Board has approved (e.g., between a net savings of $0.05 to a cost of $1.70 per pound of emissions reduced.)

The ARB strongly believes that the emissions reductions resulting from consumer product regulations will help to improve air quality in California. The regulations are a necessary step in the efforts to control emissions from all consumer products and implement the mandate of Health and Safety Code Section 41712.

While all VOCs are potential contributors to air pollution, some VOC components of consumer products have very low vapor pressures and have therefore been exempted from the regulation (see Section 94510(e)). Overall, the ARB estimates that emissions of VOCs from the products in this regulation are approximately 102 tons a day statewide. The regulation would reduce the volatile organic compound emissions to approximately 57 tons per day, which would essentially achieve an 45 percent control efficiency. Because consumer products are widely distributed products whose use is directly proportional to the population in any given area, the greatest VOC reductions will occur in areas with the largest population. Therefore, most emission reductions from this regulation will occur in urban areas where they are most needed to reduce both ozone and PM10.

The proposed regulations contain two important sections that merit a brief discussion: the "Innovative Products" provisions (section 94503.5 and 94511) and the product "Registration" requirements (sections 94504(b) and 94513). Staff recognized during the development of the regulation that, due to the nature of consumer products, it would be necessary to provide alternatives to the traditional command and control approach. The alternative provided is Section 94511-"Innovative Products". This provision allows a manufacturer to exceed a VOC standard specified in Section 94509, as long as it can be shown that the product will result in less VOC emissions than the emissions from a product which meets the standard. The innovative products provision is designed to provide flexibility to industry while achieving maximum possible reductions. The provision does not, however, specify a set of rigid criteria for determining exactly what constitutes an innovative product. Any exemption granted by the Executive Officer under the innovative products provision will be given on a case by case basis. Any manufacturer applying for such an exemption will be required to provide sophisticated consumer tests and physical data which

demonstrate that the product is truly innovative. A more detailed description of the innovative products provision can be found on pages 44-46 of the staff report.

The registration section requires that certain information must be provided to the ARB every three years for specified categories of consumer products. The specified categories are those products for which VOC standards are set forth in the regulation, are those products which are being evaluated for future regulation. The provisions is necessary to provide emissions data and technical information on consumer products sold in California. Without this type of information, it is impossible for the Board to make informed regulatory decisions or evaluate the effectiveness of the regulation over time.

III. MODIFICATIONS MADE TO THE CONSUMER PRODUCTS AND ANTIPERSPIRANTS AND DEODORANTS REGULATIONS

A. Modifications approved by the Air Resources Board at the October 11, 1990 public hearing

At the October 11, 1990 public hearing the staff proposed various modifications to the original proposal in order to address the comments of industry representatives, the public, environmental groups, and government agencies. In Resolution 90-60, the Board approved the modifications described below.

1. Section 94508. Definitions. A number of the definitions contained in section 94508 were modified. Definitions were also added for the terms "Dual-purpose Air Freshener/Disinfectant", "Liquid", "Solid", and "Wax". The definition for "Charcoal Lighter Fluid" was deleted. These modifications were made in order to clarify the language of the regulation and more accurately define the scope of each consumer product category.

2. Section 94509. Standards for Consumer Products. The following modifications were made to section 94509:

Section 94509(a). In the Table of Standards contained in section 94509(a), the original proposal specified a 6 percent VOC standard for glass cleaners, effective 1/1/93. In order to insure that these standards are technologically and commercially feasible, the VOC standard for glass cleaners was modified to specify, effective 1/1/93, a 12 percent standard for aerosol glass cleaners and an 8 percent standard for all other glass cleaner forms. For all other (nonaerosol) glass cleaner forms, a future effective standard of 6 percent was also specified, effective 1/1/96. In addition, the originally proposed Table of Standards listed the year in which each future effective standard would be applicable (i.e., 1996 or 1998), but did not describe the exact day of the year on which the standard would become effective. The regulations were clarified to provide that each future effective standard will become effective on January 1 of the specified year.

Section 94509(b). The language of Section 94509(b) was modified to provide clarification on when the VOC standards in the Table of Standards are applicable to diluted products.

Section 94509(d). For consumer products registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the original proposal provided that one extra year would be allowed to comply with the earliest VOC standard specified for each product category in the Table of Standards. Section 94509(d) was modified to clarify that for FIFRA-registered products, the "sell-through" period provided in section 94509(c) would also begin one extra year after the date of the earliest VOC standard for each product category specified in the Table of Standards.

Section 94509(e). As originally proposed, section 94509(e) prohibited the use in consumer products, effective January 1, 1993, of any ozone-depleting compound listed in two referenced documents. Section 94509(e) also provided that under certain specified circumstances, the manufacturer or user of a halogenated compound must determine the compound's ozone depletion potential using one of the full atmospheric models described in the AFEAS Report (or any other method determined by the Executive Officer to give equivalent results). To improve the clarity of this section, section 94509(e) was modified to set forth a list of exactly which ozone-depletion compounds are prohibited from use. All compounds known to have an ozone depletion potential greater than 0.00 were included, and references were eliminated to lists of these compounds contained in other documents. In addition, the requirement for the testing of halogenated compounds before use was deleted. This requirement was eliminated because of the difficulty at the present time in clearly identifying a replicable test method for determining a compound's ozone-depletion potential.

3. Section 94510. Exemptions. The original proposal contained a number of exemptions from the requirements of the statewide regulation. Section 94510 was modified to delete the exemptions for (1) paint, furniture coatings, and architectural coatings, and (2) organic compounds contained in insect repellents [2-ethyl-1,3-hexanediol (Rutgers 612)]. These exemptions were unnecessary because the statewide regulation does not set VOC standards for these categories of consumer products.

In addition, Section 94510(b) was modified to exempt distributors as well as manufacturers from liability (as long as certain specified conditions are met) for selling, supplying, or offering for sale consumer products that do not comply with the Table of Standards. Language was also added to provide that the exemption does not apply to comsumer products that are sold, supplied, or offered for sale by any person to retail outlets in California.

4. Section 94511. Innovative Products. As originally proposed, section 94511(a) & (b) described the criteria that a product must satisfy in order to qualify for an innovative product exemption. One of the originally proposed criteria was that the innovative product must have the "same" product efficacy as another product used as a standard for comparison. Because it is unlikely that an innovative product would have exactly the same efficacy as a comparison product, the language of section 94511(a) & (b) was modified to provide that products must have "at least similar efficacy". In addition, a number of other modifications were made to the language of section 94511 in order to provide improved clarity.

5. Section 94512. Administrative Requirements. The original proposal provided that, if on a consumer product container or label, or in any sales or advertising literature, any representation is made that the product is suitable for use as a consumer product for which a lower VOC standard is specified in the Table of Standards, then the lowest VOC standard shall apply. Section 94512 was modified to clarify that this requirement applies only to statements or representations made on the product container, or on any sticker, label, packaging, or literature attached to the product container. This modification will more clearly inform affected public as to exactly what kind of representations will be considered to determine in which category a consumer product will be placed under the regulation.

6. Section 94513. Registration. Section 94513 was modified to clarify that all air fresheners are subject to section 94513 registration requirements, even though certain types of air fresheners are exempted by section 94510(f) & (g) from the VOC standards specified in the Table of Standards. Section 94513 was also modified by removing charcoal lighter fluid from the list of products for which registration data is required.

In addition, section 94513 was modified by replacing the specified "March 1, 1991" response date with the phrase "the effective date of this article". This modification is necessary because the proposed regulations were not submitted to the Office of Administrative Law (OAL) until after March 1, 1991. Since a regulation cannot be legally binding before OAL approval, the modification clarifies that the regulation imposes no legal requirements until the date on which it becomes legally effective. Because the modification has no legal effect (e.g., the regulation would not become legally binding until the effective date, even if the March 1 date remained in the text of the regulation) the ARB considers this to be a nonsubstantial change. The modification was made to the text of the regulation shortly before submission to OAL.

7. Section 94515. Test Methods. Section 94515(b) was modified to more clearly describe the circumstances under which a manufacturer's daily records may be used to demonstrate compliance with the requirements of the statewide regulation. In addition, section 94515(c) was deleted in order to avoid the possibility that the original language could be construed to inappropriately establish a conclusive presumption of the accuracy of Executive Officer test results.

8. Section 94517. Federal Enforceability. A new Section 94517 was added to the statewide regulation in order to clarify that the Environmental Protection Agency (EPA) is not subject to approval determinations made by the Executive Officer under sections 94511 and 94514 (e.g., exemption or variance determinations). This language is necessary to assure that the statewide regulation will meet EPA criteria for inclusion in the applicable state implementation plan (SIP). Section 94517 clarifies that the EPA retains its power under the federal Clean Air Act to independently enforce all provisions of the statewide regulation once the regulation has been approved by EPA for inclusion in the SIP.

Section 94517 also provides that, upon request by a person who has been granted an exemption or variance under sections 94511 or 94514, an exemption or variance meeting the requirements of the Clean Air Act shall be

submitted to the EPA as a source-specific SIP revision (e.g., as a revision to the applicable implementation plan). This language is necessary to allow manufacturers who have received an exemption or variance the option of obtaining EPA approval for the exemption or variance. In addition, section 94517 provides that the Executive Officer shall hold a public hearing prior to submitting an exemption to EPA for inclusion in the SIP. This requirement is necessary because EPA regulations require that a public hearing must be held prior to submitting a SIP revision.

9. In addition to the modifications described above, various clarifications and grammatical modifications were also made to the the original language of the statewide regulation.

B. Modifications approved by the Air Resources Board at the October 11, 1990 public hearing for the antiperspirants and deodorants regulation

At the October 11, 1990 public hearing the staff proposed various modifications to the antiperspirants and deodorants regulation which was approved by the Board at a November 8, 1989 public hearing (Title 17, California Code of Regulations, sections 94500-94506.5). In Resolution 90-60, the Board approved the modifications described below.

1. Section 94503.5 Innovative Products. The original proposal added to the antiperspirant regulation a new section 94503.5; this new section was identical to the statewide regulation (except for different references to the appropriate section numbers for each regulation). Because section 94511 of the statewide regulation was modified, section 94503.5 of the antiperspirant regulation was also modified to be consistent with the language of the statewide regulation.

2. Section 94504. Reporting. The original proposal made no modifications to section 94504(b) of the antiperspirant regulation, which contains the reporting requirements applicable to antiperspirant and deodorant manufacturers. Section 94513 for the statewide regulation also contains reporting requirements applicable to manufacturers of other consumer products, but these requirements were not entirely consistent with the original antiperspirant and deodorant reporting requirements. To improve clarity and reduce confusion, the language of the section 94504(b) was modified to be substantially similar to the language of section 94513 of the statewide regulation. It should be noted, however, that there are still unavoidable minor differences between the reporting requirements of the two regulations. This is because the regulatory requirements of the antiperspirant regulation makes it necessary to obtain slightly different information to determine compliance (i.e., HVOC and MVOC content.)

3. Section 94506. Test Methods. The original proposal made no modifications to section 94506 of the antiperspirant regulation, which specifies the test methods to be used to determine compliance with the regulation. Section 94506 was modified to be consistent with section 94515 of the statewide regulation, which provides that specified alternative methods may be used by manufacturers to demonstrate compliance.

4. Section 94506.5. Federal Enforceability. A new section 94506.5 was added to the antiperspirant regulation. Section 94506.5 is

identical to section 94517 of the statewide regulation (except for different references to the appropriate section numbers for each regulation). It is necessary to include provisions on federal enforceability in the antiperspirant regulation for the same reasons that similar provisions are necessary in the statewide regulation.

IV. SUMMARY OF COMMENTS AND AGENCY RESPONSES

The Board received numerous written and oral comments, both in connection with the October 11, 1990 hearing and during the subsequent 15-day comment period.

A list of commenters is set forth below, identifying the date and form of all comments that were timely filed. Following the list is a summary of each objection or recommendation made regarding the specific adoption and amendments proposed, together with an explanation of how the proposed action has been changed to accommodate the objection or recommendation, or the reasons for making no change. A number of commenters expressed general support or disagreement with the regulation or certain aspects of it, but did not suggest that the Board take any specific action. While these comments were considered by the Board, they are not separately addressed in this Final Statement because they were not objections or recommendations specifically directed at the proposed action or the procedures followed by the Board in proposing or adopting the proposed action.

EPA	Dave Howekamp Environmental Protection Agency Written testimony: October 10, 1990 Oral testimony: October 11, 1990
SCAQMD	Pat Nemeth South Coast Air Quality Management District Oral testimony: October 11, 1990
BAAQMD	Milton Feldstein, Air Pollution Control Officer Bay Area Air Quality Management District Written testimony: September 25, 1990
Cosmosol	Albert Saferstein, President Cosmosol Ltd. Written testimony: September 25, 1990
KCAPCD	William Roddy, Air Pollution Control Officer Kern County Air Pollution Control District Written testimony: September 25, 1990
DHS	Steven Book, Chief Department of Health Services Written testimony: October 3, 1990
NII	Robert Cataneo, President Natac Industries, Inc. Written testimony: October 3, 1990

CAHHS	Roger Richter, Senior Vice President California Association of Hospitals and Health Systems Written testimony: October 4, 1990
Ecolab	John Keenan, Ph.D. Ecolab Inc. Written testimony: October 5, 1990
CDA	Rodney Stine, Director California Dental Association Written testimony: October 5, 1990
CP	Patricia Del Monaco Chesebrough-Ponds USA Co. Written testimony: October 8, 1990
SDAPCD	R.J. Sommerville, Air Pollution Control Officer San Diego County Air Pollution Control District Written testimony: October 10, 1990
CAPCOA	Robert Carr, President California Air Pollution Control Officers Assc. Written testimony: October 9, 1990
UCD	Neil Flynn, M.D. University of California, Davis Written Testimony: October 9, 1990
DuPont	E.J. Lukosius, Manager, Environmental Programs DuPont Chemicals and Pigments Written testimony: October 9, 1990
CVL	Michael Ebers, Regulatory Specialist Calgon Vestal Written testimony: October 9, 1990
SCJS	Robert Olivero, Vice President S.C. Johnson & Son, Inc. Written testimony: October 9, 1990
CPA	Bruce Dixon, Counsel Chlorobenzene Producers Association Written testimony: October 9, 1990
SLG	Bill Wilderson, Vice President Scott's Liquid Gold Written testimony: October 9, 1990
CSMA	Ralph Engel, President Chemical Specialty Manufacturers Association Written testimony: October 1990 Oral testimony: October 11, 1990
CTFA	Tom Donegan, Vice President and General Counsel

	The Cosmetic, Toilet, and Fragrance Association Written testimony: October 11, 1990 Oral testimony: October 11, 1990
WAIB	Steve Sanchez Western Aerosol Information Bureau Oral testimony: October 11, 1990
SDA	Gene Livingston The Soap and Detergent Association Written testimony: October 9, 1990 Oral testimony: October 11, 1990
L&F	James M. Mattesich Lehn and Fink Products Group Written testimony: October 11, 1990 December 28, 1990
PFIZ	Merrill Fliederbaum, Assistant Counsel Pfizer, Incorporated Written testimony: December 27, 1990
RCI	Eileen J. Moyer, Director Reckitt & Colman Household Products Written testimony: October 10, 1990
AERO	Harry McCain, Ph.D Aeropres, Corporation Written testimony: December 14, 1990
DOW	Paul Szczesny Dow Chemical USA Oral testimony: October 11, 1990
PGC	Robert Jamieson The Proctor & Gamble Company Written testimony: October 9, 1990 Oral testimony: October 11, 1990
IBT	Kevin Nolan International Brotherhood of Teamsters Written testimony: October 9, 25 1990 Oral testimony: October 11, 1990
Kingsford	Laurie Carrigan Kingsford Company Oral testimony: October 11, 1990
Stacey	Kent Stacey, Citizen Oral testimony: October 11, 1990
TAG	Bruce Howard The Aerosol Group Oral testimony: October 11, 1990

CBE	Julia May, Research Associate Citizens for a Better Environment Oral testimony: October 11, 1990
Drackett	Thomas Hilton The Drackett Co. Oral testimony: October 11, 1990
TCC	David L. Govak The Clorox Company Written testimony: December 21, 1990
MAD	Michael Madalo PMI Distributors, Inc. Oral testimony: October 11, 1990
CAL	C. N. Goeders Caltech Industries Written testimony: August 1, 1990
Beckman	Jack E. Sorokin, Associate Counsel Beckman Instruments Written testimony: October 10, 1990
NPCA	Michael Allen National Paints and Coatings Association Oral testimony: October 11, 1990
HSIA	Paul A. Cammer, Ph.D Halogenated Solvents Industry Alliance Written testimony: December 28, 1990
DAI	Donald G. Shaheen Degesch America, Inc. Written testimony: December 14, 1990

A. Economic Impacts of the Regulation

1. Comment: For the following reasons, the ARB has significantly underestimated the cost of the regulation to industry:

(a) The ARB's economic impact analysis incorrectly assumes: (1) that no major retooling of manufacturing equipment will be necessary, (2) that no increase in raw material cost will occur, and (3) that reformulated products will be marketed nationally. (CP, CSMA)

(b) The impact on upstream suppliers and distributors has been underestimated. (CSMA)

(c) Other research and development costs should have been included in calculating the cost of reformulated products, such as market study costs, consumer evaluation, packaging tests, patent evaluation, production equipment and production trials. (CSMA)

(d) The number of noncomplying products was underestimated. The cost effectiveness ratio would be higher for the same reason. (CSMA)

Agency Response: (a) ARB staff correctly assumed that no major retooling of manufacturing equipment would be necessary. Retooling will not be necessary because we do not believe that the regulation will result in any significant elimination of existing product forms, which is the only result that might require significant retooling (see also the response to Comment #4).

While the cost for raw materials was not individually predicted, the ARB has fully taken these costs into account. As discussed in the Staff Report and Technical Support Document (TSD; pages 67 to 71), the staff estimates that the costs of product reformulation, including the cost of raw materials, will be between $100,000 and $2,000,000. This estimate contains a margin of error to account for possible price increases in raw materials, and for other unanticipated costs. Many consumer products manufacturers have informed the ARB of the extreme difficulties in establishing a separate distribution network for individual products. In light of these comments, staff believes it is reasonable to expect such products to be distributed nationally.

(b) No information was submitted to ARB from industry detailing any significant impact to upstream suppliers and distributors. As a result, staff used available data complied by the New York State Department of Environmental Conservation. Research information in this report showed minimal impact to these entities as a result of consumer product regulation.

(c) These costs were fully taken into account when estimating the overall cost for reformulation. While these costs were not specifically mentioned in the Technical Support Document, they were evaluated by staff and included in the overall estimates for product reformulation (see pages 67 to 71 of the TSD).

(d) The number of noncomplying products was derived from the survey information submitted by industry. This is the most accurate available information. If this number underestimates the number of noncomplying products, and thus the cost to industry, total emission reductions will also be underestimated. Therefore, staff expects no significant impact on the cost effectiveness ratio as a result of any underestimation of noncomplying products that might possibly have occurred.

2. Comment: The cost estimates and impacts in the TSD are based on unproven assumptions and inadequate data or data of undemonstrated origins. (CSMA, PGC)

Agency Response: The ARB used information supplied by industry in estimating the costs and impacts of the regulation. We believe that the best available data was utilized, and that all assumptions based on this data were reasonable. The full rationale for the cost estimates and impacts are found on pages 67 through 71 of the TSD.

3. Comment: Assumptions made by the ARB in calculating cost-effectiveness are invalid. Inappropriate use of projected national emissions reductions, in addition to the underestimation of total economic

impact, led to significant overestimation of the cost effectiveness of the proposed regulation. (CSMA, CTFA)

Agency Response: The assumptions made by ARB staff in calculating the cost-effectiveness are valid and did not lead to an over estimation of the cost-effectiveness. In some cases the cost effectiveness ratios may even be more favorable than predicted due to the transfer of research and development costs to other products. It is also appropriate to use projected national emission reductions to determine the cost effectiveness of the regulation, since the majority of manufacturers market their products nationwide and the emission reductions will be realized not only in California but the rest of the United States as well. The assumptions made by ARB staff are set forth on page 68 of the TSD.

4. Comment: Any economic analysis conducted by the ARB must estimate the costs of retooling packaging lines only for the State of California and not the rest of the nation. A separate distribution system for California-only products would make the regulation unfeasible. (CTFA)

Agency Response: As stated in the Technical Support Document (see pages 67 to 71), the economic analysis conducted by ARB did not consider retooling costs. This is a reasonable assumption since the regulation will allow manufacturers to meet the regulatory standards while still retaining substantially the same product forms. In addition, since consumer product companies have indicated to ARB staff that they intend to market reformulated products nationwide, ARB economic analysis assumed there would not be a separate product with a separate distribution systems solely for California.

5. Comment: The statement that the regulation may result in a cost savings to industry due to replacement of solvents is incorrect. If water could be used in place of solvents, it already would have been. Replacing VOC solvent with water would not result in a cost savings to industry due to lower efficacy of the reformulated products. (CSMA)

Agency Response: The TSD states that "In some cases, the regulation may result in a net savings to industry (see page 69)". This statement refers to the fact that products reformulated to contain more water, (which is generally used to replace VOC solvents) may have an economic advantage because water is substantially cheaper than VOC solvents. The statement does not mean that a solvent may be replaced with water without any other modifications, and we agree that direct replacement of VOC solvents with water would in most cases lead to an unsatisfactory product. However, reformulating products to have lower VOC content does not necessarily imply lower efficacy or a product unsatisfactory to the market place. A product's efficacy is dependent on many factors including the individual formulation, application, application technique, etc. ARB's Consumer Product Survey shows that there are a number of products that currently comply with the VOC standards specified in the regulation. Many of these products hold a significant share of the market, indicating that they are satisfactory to consumers. This indicates that the higher VOC products can be reformulated to lower VOC products and still be technologically and commercially feasible. Furthermore, it is not accurate to say that water would already have been substituted for VOC solvents if it were possible; many manufacturers are unwilling to change formulations because they are

reluctant to change a successful product or because they do not want to expend resources on research and development.

6. Comment: It is not a reasonable assumption that all of the cost to the consumer from the regulation will be passed on by the aerosol form. (CSMA)

Agency Response: ARB cost analysis did not assume that all of the cost to the consumer will be passed on by the aerosol form. Due to the complexity of the consumer product market, the ARB estimated the cost increase to the consumer by using the cost increase of aerosols as an indicator. Estimates were developed using the annual cost of reformulation, the total number of aerosol product formulations that will need to be reformulated to comply with the regulation and the total number of aerosol units sold annually. The methodology of these estimates is set forth on page E-4 of the TSD.

7. Comment: There is no evidence given in the Staff Report to substantiate that small businesses would not be adversely affected. (CSMA)

Agency Response: On pages 39 to 40 of the staff report, staff summarized our conclusion that small businesses would not be adversely affected by the regulation. The conclusion was based on ARB staff analysis which demonstrated that the return on owner's equity would decrease by less than 10 percent due to costs resulting from the regulation.

8. Comment: The Staff Report and Notice incorrectly state that "the Board's Executive Officer has determined that the proposed regulation will not create costs or savings". There will in fact be high costs as a result of this regulation. (MAD)

Agency Response: The notice of proposed adoption stated: "...the proposed regulation will not create costs or savings, as defined in Government Code Section 11346.5(a)(6). ...". This statement is correct. While costs will be incurred by the ARB during the adoption and implementation of the regulation, and by industry in complying with the regulation, these are not "costs or savings' within the meaning of Government Code Section 11346.5(A)(6).

B. Emissions and Air Quality Impacts

9. Comment: The California Clean Air Act requires that consumer product regulations must be "necessary'. We believe this requires that each of the standards proposed would result in reducing ozone formation in non-compliance areas of the state. (CSMA, SLG)

Agency Response: In the aggregate, the proposed standards achieve significant emission reductions and are necessary to address California's air quality problem (see Section II of this Final Statement of Reasons). The greatest emissions reductions will be achieved urban areas with the largest populations and the most serious air quality problems (See response to Comment #15). In enacting the California Clean Air Act, the Legislature could not have intended that measurable ozone reductions must be demonstratable for each proposed standard. Such detailed analysis is beyond the capability of current air quality modeling analysis, and requiring such

a demonstration would prevent the ARB from fulfilling the Legislative mandate to "...achieve the maximum feasible reduction in reactive organic compounds emitted by consumer products..." (Health and Safety Code Section 41712).

10. Comment: No data was provided that would substantiate the claim that a decrease in VOC emissions would result in a decrease in tropospheric ozone. (CSMA)

Agency Response: In the scientific community it has been an accepted fact that ozone is formed by the reaction of volatile organic compounds (VOCs) and nitrogen oxides in the presence of sunlight, and that a reduction of the reaction components will decrease the formation of ozone. As explained in the Staff Report (pages 7 through 12) and the TSD (pages 11 through 14), consumer products contain VOCs which, when emitted, contribute to the atmospheric reaction that forms ozone. The regulations will decrease VOC emissions from consumer products. Since VOCs are precursors to ozone, a decrease in VOC emissions will result in a decrease in tropospheric ozone.

11. Comment: There is no evidence that VOC emissions lead to PM10. (CSMA)

Agency Response: As stated in the TSD (pages 11 and 12), PM-10 is formed as a result of a chemical reaction between VOCs, nitrogen oxides, sulfur oxides and other chemicals in the atmosphere. The existence of this reaction is an accepted fact in the scientific community and is not seriously disputed.

12. Comment: No data is given which supports the claim that the proposed regulation will help California meet state and federal ambient air quality standards. (PGC)

Agency Response: As explained in the response to Comment #10 and Section II of this Final Statement of Reasons, a reduction in VOC emissions will help to reduce tropospheric ozone levels. Any decrease in tropospheric ozone will promote progress toward the state and federal ambient air quality standards for ozone.

13. Comment: The staff fails to show that the standards in the regulation will result in emission reductions. In the case of a standard that will eliminate a product form, an analysis of the emissions from probable substitutes is necessary. (SLG)

Agency Response: The regulations limit the amount of VOCs in consumer products. Since less VOCs will be allowed in consumer products, less will be emitted to the atmosphere. The TSD (pages 71 to 73) contains a detailed description of the emissions reductions that are expected from implementation of the regulations. Emissions reductions are estimated to be 45 tons per day by 1998. Also, the regulations will not result in any significant elimination of product forms, and therefore it is not necessary to perform an analysis of the emissions from substitute forms. In any event, such an analysis would be highly speculative and of little practical value.

14. Comment: Emissions reduction calculations are inaccurate since no consideration was given to the efficacy of reformulated products and the effect on consumer usage rates. (CSMA)

Agency Response: In estimating emission reductions, staff assumed that reformulated products will be at least as efficacious as existing products. We believe that this is a reasonable assumption given that a significant number of existing products already meet the proposed standards, and already have sufficient commercial presence to demonstrate consumer acceptance. This is strong evidence that it is possible to reformulate noncomplying products without sacrificing efficacy. In addition, an inefficacious reformulated product will likely fail in the marketplace, and therefore not result in a significant increase in VOC emissions due to increased usage.

15. Comment: The staff has not made a specific finding of necessity in support of each of the standards proposed. The amount of VOC emissions contributed by individual consumer product categories is often very small and a general finding of "necessity" does not meet the requirements of Health and Safety Code Section 41712. The ARB should only promulgate regulations of consumer products where demonstrably significant reductions in VOC emissions will be achieved. (CTFA, SLG)

Agency Response: In resolution 90-60, the Board found that the proposed regulations are necessary to attain and maintain the state and national air quality standards. The rationale for this finding is explained in the Staff Report, TSD, Section II of the Final Statement of Reasons. To briefly summarize, California's air quality problem is so serious that it is necessary to regulate ambient air quality standards, as required by the California Clean Air Act. When small sources are added to the millions of other consumer products used each day, the total emissions become cumulatively significant. The ARB estimates that reformulation of the two largest categories of consumer product emissions identified to date (hairsprays and automotive windshield washer fluid) will only eliminate 36 tons from the estimated 250 tons per day of VOC emitted from consumer products in California. 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...".

16. Comment: Regulating other emission sources would be more effective. (CSMA)

Agency Response: Section II of this Final Statement of Reasons describes why the regulation of consumer products is necessary. Briefly, all sources of VOC emissions in California need to be regulated to achieve ambient air quality standards, as required by the California Clean Air Act. The ARB has adopted many regulations to control other sources of VOCs, including motor vehicles, coating operations, and industrial processes. Even with the regulations enacted to date, however, most Californians live in areas which are non-attainment for the state and federal ozone and PM-10 standards. Consumer products are a significant source of VOC emissions in California and one that is largely unregulated. Because of the serious air quality problems in California and the inability of most populated areas to

meet the state and federal standards for ozone and PM-10, it is necessary to regulate consumer products as well as other sources of VOC emissions.

17. Comment: Very small emissions from nail polish removers do not warrant regulation and expense of reformulation from these products. (CTFA)

Agency Response: As explained in the responses to the previous two comments, the ARB believes that it is necessary to regulate even small sources of VOC emissions. In addition, the cost-effectiveness ratio for reducing emissions from nail polish removers is within the range of other VOC control measure adopted by the Board.

18. Comment: We believe that estimates of emissions and emissions reductions should be made using the best possible data and the most accurate and reasonable assumptions and judgements. Such estimates cannot be based solely on simplistic analyses involving a product's percent VOC content. For some situations, VOC content does not equal VOC emissions. (PGC)

Agency Response: We agree that in some situations VOC content of a product does not directly correspond to VOC emissions. The regulation reflects this by exempting those compounds which meet the definition of a VOC, but have more than 12 carbon atoms or a vapor pressure less than 0.1 mm of mercury (see section 94510(d)). This exemption will serve to regulate only those VOCs which are likely to be emitted to the atmosphere.

19. Comment: Most emissions from automotive windshield washer fluid probably occur during winter and in areas where ozone noncompliance is not a problem. (CSMA)

Agency Response: No information has been submitted to staff to support the contention that winter use of washer fluid is greater than summer use, or that most of the emissions occur in areas that comply with ozone air quality standards. Approximately 95% of the California population lives in ozone nonattainment areas. Since the density of automobiles in a given area tends to be proportional to the population for that area, it is not credible to believe that the approximately 5% of California vehicles in ozone attainment areas can be responsible for the majority of washer fluid emissions.

20. Comment: CARB's 0.45 TPD emission estimate for Insect Repellents is probably high since DEET may have been included as a VOC. (CSMA)

Agency Response: Both CARB staff and staff from CSMA/Heiden Associates have reviewed the submitted data. Subsequent to reviewing the submitted data, CSMA staff assured CARB staff that the errors had been identified and corrected. Additionally, all the major insect repellent manufacturers, representing almost all of the California market, worked with and submitted their data to Heiden Associates, which was then reviewed by CSMA. These manufacturers have followed the development of the regulations and have given no indication that they were confused about the regulatory definition of volatile organic compounds.

21. Comment: Insect repellent should not be regulated at this time because regulating insect repellent would have a minimal impact on VOC

emissions. The cost to industry and the ARB is not justified due to the very small emissions from this product category. (SCJS)

Agency Response: As fully explained in the responses to Comments #15 and #16, it is necessary to regulate even small sources of VOC emissions in order to achieve ambient air quality standards, as required by the California Clean Air Act. In addition, the cost-effectiveness ratio for reducing emissions from insect repellents is expected to be within the range of other VOC control measures adopted by the Board. A detailed discussion of the necessity for regulating insect repellents is contained on pages 55 to 57 of the TSD.

22. Comment: The ARB may only regulate reactive or photochemically reactive emissions of VOCs from consumer products. The regulation should take into consideration the fact that certain VOCs are much less reactive than others. No attempt was made to determine whether these regulatory standards might result in emissions of VOC species of higher photochemical reactivity, thereby reducing or eliminating any potential environmental benefits. (CSMA)

Agency Response: Health and Safety Code section 41712 requires the Board to achieve the maximum feasible reduction in reactive organic compounds. The regulation meets this statutory requirement because VOCs, as defined in section 94508(68), are reactive organic compounds. The reactivity of these compounds has been demonstrated in many studies by the EPA, the ARB, and a number of private researchers. Compounds that have been found to be not photochemically reactive are specifically exempted from the definition of VOC.

However, there are a number of reasons why it is inappropriate to establish a regulation that considers the relative reactivity of the different VOCs used in consumer products. Compared to highly reactive compounds, compounds with low reactivity generally take more time to participate in the complex chemical reactions that lead to ozone and PM-10 formation. However, these compounds will react eventually if given enough time to do so and the right atmospheric conditions. In many of the state's air basins, inversions frequently trap pollutants in a stagnant air mass which contains the proper conditions for ozone and PM-10 formation. When such conditions are present, there is sufficient time for compounds with low reactivity to react chemically and create air pollution.

In addition, it would be extremely difficult to calculate a meaningful estimate of the relative reactivity of the many compounds used in consumer products. Computing reactivity is not an exact science. There are many compounds for which reactivity estimates are not known, and there are many uncertainties that scientists have not resolved in comparing the reactivity of one compound from another. The Board does not wish to enact standards that may later prove to be based on inaccurate scientific data. Also, the reactivity of any single compound may vary widely depending on varying atmospheric conditions such as the concentration of VOCs and oxides of nitrogen, temperature, exposure to ultraviolet light, and the amount of time the compound has to react. The situation is further complicated because all of these variables vary greatly between California's different air basins. For a regulation which is applicable statewide, these factors make it very

difficult to come up with a single number that validly represents a compound's reactivity.

Because of these considerations, it is the general policy of the Board to consider reactivity only after VOCs have already been reduced to the maximum extent feasible through previous regulatory actions. Since this is clearly not the case with this initial regulatory effort to control consumer product emissions, the staff feels that it is inappropriate at this time to consider reactivity as a basis for the regulation.

23. Comment: The regulation should make allowance for the relative reactivity of the differing VOCs found in consumer products. To ignore large differences in reactivity among VOCs could result in inefficient methods for controlling ozone formation, and ozone levels might actually increase, despite a reduction in the mass of emissions, if more reactive VOCs are substituted. (L&F)

Agency Response: For the reasons identified in the previous comment, the ARB believes that it is inappropriate at this time to consider relative reactivity of different VOCs used in consumer products.

24. Comment: The emission reductions in Table 11 are in error. The numbers given as tons per day are actually in pounds per day. (CSMA)

Agency Response: The commenter has correctly identified a typographical error in Table 11 (page 39 of the TSD). Emission reductions for floor polishes/waxes should have been expressed in pounds per day. The correct numbers were used in evaluating this category and determining its contribution to total emissions from consumer products.

25. Comment: There appears to be an error in Table 14. Either the data in the "emissions (T/D)" column are incorrect (2.0 T/D solids seem very high), or the calculation of the number in the "percent of emissions" column is incorrect. (CSMA)

Agency Response: Incorrect figures were listed in the "Emissions (T/D)" column of Table 14 (page 43 of the TSD). However, the total of the numbers in this column correctly identifies the emissions from general purpose cleaners in California (4.90 tons per day). The "percent of emissions" of each type of general purpose cleaner (the last column in Table 14) was also correctly calculated.

26. Comment: Using the equation in the TSD to calculate emission reductions from a product could result in a negative number if the product is already below the VOC standard. If negative numbers were not corrected to zero, the emission reductions are in error. (CSMA)

Agency Response: Staff correctly calculated the emission reductions from the proposed regulations. Conceptually, the following spreadsheet algorithm was used to calculate emission reductions from the submitted data:

If the VOC Content (reported) is less than or equal to the VOC Content (standard), then the emission reductions are equal to zero. Otherwise,

the emission reductions are calculated using the equation cited in the TSD on page 17:

$$\text{Emissions (lb/yr)} = \text{Sales (lb VOC/yr)} * \frac{[(VOC_{reported} - VOC_{std})]}{VOC_{reported}}.$$

Reductions

VOC content

Although a mechanical application of the TSD formula would have resulted in the errors described by the commenter, it was obvious to ARB staff that the emission reductions are zero when the VOC content is less than or equal to the standard. Therefore, staff took this factor into account, and errors occurred because of the lack of specificity in the TSD formula.

C. Technological and Commercial Feasibility

This section includes general comments on the technological and commercial feasibility of the regulation. Comments on the feasibility of the standards for specific categories of consumer products are contained in Section N.

27. Comment: The regulation lacks legal or factual support and will serve to effectively ban products which are unable to reformulate. (SLG)

Agency Response: The commenter's statement does not identify the specific legal and factual problems with the regulations, and the Board believes that the provisions of the regulations are fully supported by the evidence in the rule making record. While it is possible that certain products in a product category will not be successfully reformulated, complying products will still exist to satisfy the "basic market demand" for each product category (see the response to Comment #29 for a discussion of this issue).

28. Comment: The regulation is not technologically and commercially feasible. (CTFA)

Agency Response: In Resolution 90-60, the Board found that the proposed regulations are technologically and commercially feasible. The Staff Report and Technical Support Document set forth the rationale for this determination for each consumer product category. Additional discussion of technological and commercial feasibility is contained in the responses to Comments #29-33, and in the responses to comments on each specific category of consumer products (Section N).

29. Comment: "Commercial feasibility" should not be defined solely as a "basic market demand" being met, because:

(a) This will relegate all California consumers to the least efficacious product form on the market, or one which only sells to a limited market niche. The feasibility standard should include more than just meeting the basic market need. (TAG, PGC)

(b) Basic market demand for specialty product forms or functions cannot be met if these forms or functions are eliminated. ARB staff should address the feasibility of the regulation for each product form. (CSMA, SLG)

(c) A product must be presently marketed and have demonstrated consumer acceptance in order to be commercially feasible. (CSMA, SLG)

Agency Response: Health and Safety Code Section 41712(b) provides that the Board shall not adopt consumer product regulations unless the regulations are "commercially feasible". The regulations meet this statutory requirement.

The term "commercially feasible" is not defined in the Health and Safety Code. In interpreting this term, the Board has utilized the reasoning employed by the United States Court of Appeals for the District of Columbia in interpreting the federal Clean Air Act. In the leading case of International Harvester Company v. Ruckelshaus, (D.C. Cir. 1973) 478 F.2d 615, the Court held that the Environmental Protection Agency could promulgate technology-forcing motor vehicle emission standards which might result in fewer models and a more limited choice of engine types for consumers, as long the basic market demand for new passenger automobiles could be generally met.

Following this reasoning, the Board has concluded that a regulation is "commercially feasible" as long as the "basic market demand" for a particular consumer product is met. The following paragraphs address the specific concerns of the commenters regarding this approach:

(a) In evaluating commercial feasibility, ARB staff did not follow an approach that would relegate California consumers to the least efficacious product form on the market, or to products that sell to only a limited market niche. The ARB did not simply assume that a VOC standard was commercially feasible because an existing product met the standard. Care was taken to assure that complying products had sufficient commercial presence to demonstrate consumer acceptance.

(b) The Board does not believe that the Legislature intended that manufacturers be guaranteed the ability to sell consumer products in all the same variety of forms and types that presently exist. To adopt such a narrow interpretation would eviscerate the clearly expressed legislative intent that "...the state board shall adopt regulations to achieve the maximum feasible reduction in reactive organic compounds emitted by consumer products..." (Health and Safety Code Section 41712(a)).

In one sense every currently marketed product is a "specialty product", because every product has some features that differentiate it from other products. Consumers who purchase a particular product or product form have demonstrated a preference over competing products that they do not buy. However, a preference for a particular product form is not the same as the basic market demand for the function that the product performs. The International Harvester case, supra, clearly makes this distinction. In International Harvester, the court stated that the proposed emissions standards would be feasible even though they might result in the unavailability of certain kinds of vehicles and engine types which some consumers preferred (i.e., fast "muscle" cars), as long as the basic market

demand for passenger cars could be generally met. Applying this principle to the area of consumer products, the proposed regulations allow the basic market demand to be met for products in each consumer product category, even though for some categories it may no longer be possible to manufacture certain product types or formulations.

(c) The ARB does not agree that a product must be presently marketed and have a demonstrated consumer acceptance in order to be commercially feasible. Such a requirement would not permit the the use of technology-forcing standards, which are a well-accepted technique for controlling environmental pollution (see responses to Comments #32 and #33). Because technology-forcing standards are a crucial part of the regulation's emission reduction strategy, the restriction advocated by the commenter would also prevent the ARB from achieving the maximum feasible reduction in reactive organic compounds from consumer products, as mandated by the Legislature in Health and Safety Code section 41712.

30. Comment: Developing and marketing a compliant product does not ensure commercial feasibility, because:

(a) An inefficacious product which is not accepted and purchased by consumers would not satisfy the "basic market demand" criteria used by ARB to define commercial feasibility. (CP)

(b) Even if a product can be reformulated, it may not be commercially feasible to produce either for California or the entire national market. (CTFA)

Agency Response: The commenters have correctly identified several criteria that must be met before a product can be considered "commercially feasible". The ARB believes that these criteria have been met for each VOC standard specified in the regulations.

31. Comment: Technological feasibility must address not only a manufacturer's ability to formulate and package a product, but must also address the functionality of that product. Clearly, the ability to mix ingredients together and package the mixture does not guarantee a functional and technologically feasible product. (CP)

Agency Response: The ARB agrees with the commenter that the "functionality" of a product (e.g., whether the product can perform the function it is designed to perform) is a key consideration in evaluating the product's technological feasibility. As explained in the Staff Report and TSD, the ARB believes that technologically feasible products can be formulated and marketed for each of the VOC standards specified in the regulations.

32. Comment: The proposed technology-forcing standards fail to meet the statutory requirement that the standards adopted must be technologically and commercially feasible. By definition, technologically and commercially feasible at the time they are adopted. Adequate data does not exist to satisfy these criteria for the technology-forcing standards. (WAIB, CSMA, CTFA, SLG, IBT)

Agency Response: In using the terms "technologically and commercially feasible", the ARB believes that the Legislature clearly intended to permit the use of "technology-forcing" standards in regulations adopted pursuant to Health and Safety Code section 41712. Technology-forcing standards are future effective standards that cannot be met through the use of existing technology, and are designed to encourage the development of technology to meet the specified standards. The use of technology-forcing standards is a well established practice, and case law interpreting the federal Clean Air Act is very clear that the authority to adopt "technologically feasible" standards includes the authority to adopt "technology-forcing" standards" (see International Harvester, supra; NRDC v. EPA, (D.C. Cir. 1981) 655 F.2d 318, 15 ERC 2057, cert den'd 16 ERC 1616). Similarly, technology-forcing standards have been used for many years in California regulations adopted by the ARB and the local air pollution control and air quality management districts.

In using the term "technologically feasible" in Health and Safety Code section 41712, one must assume that the Legislature was aware of how this term has been consistently interpreted in both case law and actual practice in California. In the legislative history of the California Clean Air Act, there is no indication whatsoever that this term was intended to have a different meaning than its long accepted one. It therefore reasonable to conclude that the Legislature intended to permit the use of technology-forcing rules to regulate consumer products.

The commenters have also questioned whether adequate data exists to adopt the particular technology-forcing standards chosen by the Board. The Board believes that adequate date does exist which demonstrates that each proposed standard can be achieved within the lead time provided. The data supporting this determination can be found in the Staff Report and the TSD. (see also the responses to the comments on each consumer product category in Section N of the Final Statement of Reasons).

33. Comment: All "technology-forcing" future-effective standards should be eliminated. These standards are not technically feasible and will cause products to be banned, thereby creating loss of jobs due to manufacturers decreasing their operations and shifting operations to other locations. (IBT, WAIB)

Agency Response: As described in the Staff Report and TSD, the ARB believes that there are products currently available which can meet the "technology-forcing" standards for engine degreasers, hairsprays, and nail polish removers (because complying products already exist, it could be argued that the term "technology-forcing" overstates the difficulty faced by manufacturers in these product categories). ARB is also aware of at least one product that will be developed and marketed and can meet the "technology-forcing" standard for the fourth category, single phase air freshener aerosols. This demonstrates that the future effective standards are technologically feasible. Because of this, ARB does not expect any loss of jobs or product bans as a result of the standards. On the contrary, it is even possible that the number of jobs could due to increased research projects and other operations initiated by manufacturers in order to meet the standards.

34. Comment: Technology-forcing standards are not justifiable or prudent since relaxation of the regulation or extension of standards may constitute a relaxation of the state implementation plan. (CSMA)

Agency Response: Technology-forcing standards are necessary to ensure that progress is made toward developing low VOC products. We believe that the technology-forcing standards specified in the regulation (e.g. the "Future Effective Dates" in the Table of Standards) can be met by manufacturers in the time frame provided and are technologically and commercially feasible (see pages 49 to 51 of the Staff Report). We therefore believe that it is appropriate to include these standards in the regulation and in California's state implementation plan submitted to EPA under the federal Clean Air Act.

35. Comment: It was not mentioned in the TSD that conducting some of the formulation development steps simultaneously is economically risky. (CSMA)

Agency Response: ARB staff was informed by industry that this is not an uncommon practice. Staff was not encouraging industry to conduct formulation development steps simultaneously, but was merely providing compliance alternatives. Staff believes sufficient time has been provided for industry to comply with the requirements of the regulation whether or not a manufacturer decides to conduct product development steps sequentially or simultaneously.

36. Comment: The statement that "industry is not being asked to develop completely new technology or products in order to comply" is not correct. (CSMA)

Agency Response: It is accurate to state that industry would not have to develop completely new technology or products to comply with the regulation. The VOC standards have been set such that there are existing complying products in every product category for every product form. Industry can utilize technology transfer from these existing products in their pursuit of compliance and there is adequate time available to reformulate non-complying products. Regulation development began in the fall of 1989, this essentially provides three years to reformulate until the first standards become effective in 1993, four years until the 1994 standards, and one additional year after the 1994 effective date for those products registered under FIFRA.

37. Comment: Inadequate attention was given to the time required to reformulate products and gain the necessary regulatory approvals to attain compliance with the proposed regulation. (CSMA)

Agency Response: As discussed in detail on pages 79 to 81 of the TSD, we believe that the regulation provides adequate lead time to both reformulate and gain any necessary governmental approvals for reformulated products. The most significant regulatory delays will be faced by products subject to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). To account for this delay, these products are given an additional year to comply (see section 94509(d)). This will allow manufacturers from 4 to 5 years to reformulate and obtain government approval, a time period which should be more than adequate, especially when one considers that recent

FIFRA amendments are designed to streamline the current procedures for processing applications.

D. VOC Survey

38. Comment: CSMA is concerned that the ARB may have received incorrect survey data, leading it to make poor conclusions regarding the limits for for several categories. The additional and corrected data on glass cleaners should be entered into the record. Also, the ARB survey did not include a large segment of the automotive windshield washer fluid market. Oven cleaners information in the TSD is inconsistent with the survey data. (CSMA)

Agency Response: Several steps were taken to ensure the collected survey data was free from error. Before the data was given to ARB, staff was informed that Heiden Associates screened and corrected the initial survey data. Even with this effort, ARB staff still had to exclude a portion of the submitted data from the survey analysis because the data was incomplete or inconsistent with other known information. In those cases in which staff received additional industry data for product categories, the data was analyzed and incorporated into the survey results. We believe that this procedure resulted in accurate data on which to base regulatory decisions. For example, the VOC limit for glass cleaners was modified based on revised data. For automotive windshield washer fluids, survey information collected by staff, ARB's 1983 emissions inventory (updated to 1988 levels), and the physical requirements of automotive windshield washer fluids were all taken into consideration in establishing the proposed VOC standards. We believe that the proposed standards adequately address all relevant concerns related to product performance. With regard to oven cleaners ARB staff believes the information contained in the TSD is accurate and consistent with the survey results.

39. Comment: A significant amount of data from the VOC survey for the bath and tile category was in error. The corrected Heiden Data shows that the average VOC of aerosol bathroom and tile cleaners is 6.85%, not 6%. The corrected data also shows that no products comply at 5%. (DOW)

Agency Response: The survey results reported in the Technical Support Document incorporate additional data that was submitted directly to the ARB by manufacturers, and therefore not included in the Heiden results. This additional data shows that there is at least one aerosol bathroom and tile cleaner that meets the 5% standard. This may also account for the difference in the average VOC content.

40. Comment: Heiden and Associates were the cause of few or none of the errors in the consumer products survey data. Problems with the product survey, including the lack of definitions for key terms and short dead lines, resulted in a high level of error, as well as an incomplete inventory of the products that would be subject to the proposed regulation. Without assistance from CSMA, the CARB survey and future surveys will not yield accurate data. (CSMA)

Agency Response: Regarding survey data, CSMA had assured the ARB that all errors had been corrected. Any survey data that had been identified as questionable by ARB staff was removed from the survey results. For future

surveys, as with past surveys, CSMA will have the opportunity to comment on proposed survey drafts.

E. Exemptions

41. Comment: The provisions of Section 94510 (b) should apply to all subsections of 94509, not just subsection (a), since there are limitations on product content in some of the other subsections that are specific to California. (SDA)

Agency Response: Section 94510(b) was modified as suggested by the commenter.

42. Comment: The regulation should include an exemption for products classified as medical devices under the Food, Drug, and Cosmetic Act, and an exemption for products used in research and development activities. (Beckman)

Agency Response: It is unnecessary and inappropriate to exempt all products classified as medical devices under the Food, Drug and Cosmetic Act (FDCA), or products used in medical research and development activities.

The current regulation applies only to those products for which VOC standards are specified in the Table of Standards. Since no standards are specified for such commonly-used medical devices as pharmaceuticals and bronchial inhalants it is unnecessary to provide an exemption for these products. Moreover, exempting all products classified as medical devices under the FDCA would also be counterproductive, since this exemption would include certain products such as dual-purpose aerosol air freshener/disinfectant sprays; certain toilet-bowl cleaners; and several general purpose cleaners. Since these products can be and are used in non-medical situations, it would be improper to provide for a blanket exemption simply because the products may technically qualify as "medical" devices under the FDCA.

Regarding the commenter's second point, the ARB is aware of no data that would support a blanket exemption on products used in research and development (R&D) activities. Indeed, given the current nature of product distribution channels, it may not even be possible to differentiate between ordinary household products and products that are used exclusively in R&D activities (assuming that such products exist). To illustrate, it would be inappropriate to exempt a commercially-available general-purpose disinfectant cleaner just because that product happens to be used by several laboratories to clean their workstations. Without information on what products are used in R&D activities and the necessity for excluding them from regulation, an exemption is inappropriate.

43. Comment: An exemption should be provided for products targeted for the health care community (as indicated by the product label). (CAL)

Agency Response: As discussed in the Technical Support Document (see pages 82 to 94 of the TSD), most of the products which are used by the health care community already comply with the regulation. Because of the need for economical products, the majority of health care facilities use

dilutable concentrates which comply with the Table of Standards when properly diluted. Moreover, ARB staff has received no comments from the health care community supporting or even requesting an exemption for all products targeted for the health care community. Finally, it would be difficult, if not impossible, to enforce a regulation that distinguishes between household products and industrial and institutional (I&I) products "targeted" for health care facilities, since the current marketing structure often provides avenues for household consumers to purchase I&I products and I&I consumers to purchase household products.

44. Comment: The Board should extend the VOC exemption to 2 mm Hg at 20 C or more than 10 carbons. (CTFA)

Agency Response: This modification to section 94510(d) is not appropriate because this would adversely affect the emission reductions that will be achieved by the regulation. Staff established a 0.1 mm cutoff upon reviewing vapor pressure characteristics for a wide variety of organic compounds found in consumer products. Research showed that there are a significant number of compounds which fall between 0.1 mm and 2.0 mm of mercury and which contain more than 10 carbon atoms. These compounds will eventually volatilize and participate in ozone formation. By exempting only those compounds with vapor pressure less than 0.1 mm Hg the regulation will control the organic compounds in consumer products which are available to contribute to ozone formation.

45. Comment: In the exemption of 100% fragrance for air fresheners, it should be made clear that product registration is still required. (CSMA)

Agency Response: As suggested by the commenter, section 94513(b) was modified to clearly state that air fresheners exempt under sections 94510(f) and (g) are still subject to the registration requirements of section 94513.

46. Comment: An exemption for cleaning products used by institutional consumers should be added to section 94510. (SDA)

Agency Response: Data collected by the ARB does not support the need for an exemption for cleaning products used by institutional consumers. As ARB staff testified at the October 11, 1990, Board hearing, a survey of products used by hospitals, hotels, restaurants, and other institutions demonstrates that the majority of surveyed products already comply with the proposed regulatory standards.

47. Comment: Section 94510(h) should be amended to exempt fragrances used in all air fresheners (particularly gel air fresheners) from the Table of Standards. Exempting the active ingredient, the fragrance, focuses attention on the ancillary elements of solvents and delivery systems where efforts to limit VOC content can be productive. The exemption would also give more flexibility for product development. (Ecolab)

Agency Response: Section 94510(f) exempts air fresheners composed entirely of fragrance (not including water or exempt VOCs) from the VOC standards specified in the regulation. This exemption was included because 100% fragrance products can generally comply with the VOC standards only by dilution, and this would not lead to emission reductions because consumers would simply use more of the product to achieve the same results. Air

fresheners, including gel air fresheners, which contain only fragrance and either water or exempt VOC ingredients are therefore exempt from the VOC limits in Section 94509(a). For gel air fresheners that are not exempt under 94510(f), the ARB consumer products survey indicates there are gel air fresheners currently available that comply with the standards in Section 94509(a), indicating reformulation is possible.

48. Comment: None of the following should be exempted from the regulation: HFCs, methylene chloride, or less reactive VOCs. (CBE)

Agency Response: HFCs and methylene chloride are excluded from the definition of VOC (section 94508(68)) because these compounds do not react in the atmosphere to form ozone and PM-10. While methylene chloride has been identified by the Board as a toxic air contaminant, appropriate controls on the use of this compound will be implemented under the AB 1807 process (Health and Safety Code sections 39650-39674). Finally, the regulation does not exempt "less reactive" VOCs for the reasons identified in the response to Comment #22. (However, as explained in the response to Comment #44, VOCs with low vapor pressure are exempted under section 94510(d)).

49. Comment: To achieve greater clarity, the exemption in Section 94510(b) should more explicitly specify the factors that would constitute "reasonably prudent precautions". To address this, the following language should be added to Section 94510(b):

> "Any of the following would be considered reasonably prudent precautions by a manufacturer: labeling of products and/or shipping containers, including the use of codes communicated to distributors or retailers; notices to distributors or retailers; or statements on bills or invoices." (SDA)

Agency Response: Prior to the start of the 45-day comment period, ARB staff made a number of attempts to draft language specifically listing the factors that would constitute "reasonable prudent precautions". However, it became apparent that this approach would not work. Consumer products are manufactured and distributed through a variety of complex arrangements, and it is simply not possible to list all the relevant circumstances that might justify an exemption. Given this fact, the ARB did not wish to specify criteria that would exclude individuals who had acted reasonably under all the circumstances, and might deserve an exemption.

As an additional consideration, the ARB did not wish to draft language that would permit unscrupulous individuals to circumvent the regulations. The language suggested by the commenter would allow such circumvention, because liability could be avoided through such simple expedients as printing easily overlooked labels on shipping cartons, or the one-time mailing of notices to distributors and realtors. ARB staff considered the use of tightly drafted criteria specifying how large labels must be or what kind of notice must be mailed, but no matter what criteria are specified it is possible to comply with the letter of the law while violating the spirit. Criteria that can be circumvented would cripple ARB enforcement efforts and penalize legitimate businesses who could be unfairly undercut by the competition.

Because of these considerations, the Board determined that it was appropriate to specify broadly worded criteria (e.g., "reasonably prudent precautions) that would allow varied circumstances to be taken into account on a case-by-case basis. The ARB believes that this is simply the best way to protect individuals who genuinely attempt to comply with the regulations, given that the alternative may be to eliminate the exemption due to the inherent drafting problems identified above. The language used in section 94510(b) is similar to regulatory language used in other ARB regulations where the same type of problem exists (i.e., see Title 13, California Code of Regulations, section 2255(b)(12)(C)). Further discussion of section 94510(b) is contained in the responses to Comments #216 and 217.

50. Comment: The last sentence in section 94510(b) should be eliminated or narrowed in scope. This current language could be construed to eviscerate the entire subsection. (SDA)

Agency Response: This comment is addressed in the response to Comment #216.

51. Comment: The TSD is incorrect in stating that much of the lab work involved in formulation development can be eliminated. (CSMA)

Agency Response: ARB staff has discussed this issue with industry and concluded that it is possible to minimize the laboratory work involved in formulation development. As stated in the TSD on Page 80, lab work can be eliminated or reduced through the use of library resources, in-house files of previous laboratory experience, and manufacturer's product literature. In addition, there are many standardized product formulations that are available in the trade literature. Manufacturers can use these formulation to aid in development work, thereby reducing the laboratory work needed to develop a completely new product.

Ozone-Depleting Compounds

52. Comment: To avoid regulating fluorine-containing compounds which have not been shown to deplete stratospheric ozone, Section 94509(e) should be amended to read "Before using any chlorinated compound propellants as a replacement for a VOC in consumer product...". (CTFA)

Agency Response: To improve the clarity of this section, section 94509(e) was modified to set forth a list of exactly which ozone-depleting compounds are prohibited from use. All compounds known to have an ozone-depleting potential greater than 0.00 were included. These modifications will eliminate the problem identified by the commenter.

53. Comment: HFCs and HCFCs should not be exempted from the regulation under any circumstances. (CBE)

Agency Response: HFCs and HCFCs are excluded from the definition of VOC (section 94508(68)) because these compounds do not react in the lower atmosphere to form ozone and PM-10. Apart from their exclusion in the VOC definition, however, the two compounds are treated differently by the regulation. HFCs do not deplete stratospheric ozone in the upper atmosphere; and should not make a significant contribution to global warming in the small quantities that might be used in reformulated consumer

products. For these reasons, the regulation does not prohibit the use of HFCs in consumer products.

By contrast, HCFCs have been found to contribute to stratospheric ozone depletion, which an established body of scientific evidence suggests is a serious treat to life on Earth. HCFCs are not currently used in consumer products subject to the Table of Standards, and section 94509(e) would prohibit the use of these compounds in new consumer product formulations.

54. Comment: The ARB should allow an ozone depleting potential (ODP) of 0.05 in aerosol products until effects on the ozone layer can be verified. The Board should specify a specific ODP number rather than stating "ozone depleting potential of greater than 0.00". (CTFA)

Agency Response: As described in the response to Comment #52, section 94509(e) was clarified by setting forth a list of exactly which ozone-depleting compounds are known to have an ozone-depleting potential of greater than 0.00. It is very inappropriate to allow a higher ozone-depletion potential of 0.05; a large and well documented body of scientific evidence has clearly established the enormous potential for environmental destruction posed by these chemicals.

55. Comment: The reference to a "full atmospheric model" in section 94509(e) does not adequately describe a specific test. The test required by this section should be more specific and verifiable by experimental means. (CTFA)

Agency Response: Section 94509(e) was modified to delete the requirement for the testing of halogenated compounds before use. This requirement was eliminated because of the difficulty at the present time in clearly identifying a replicable test method for determining a compound's ozone depletion potential. As the scientific community identifies other compounds with the potential to deplete the Earth's ozone layer, these compounds can be included in Section 94509(e) as necessary through future rulemaking actions.

56. Comment: Allowance for 1.0% or less of ODP compounds in section 94509(f)(2) would make more sense economically and realistically than currently allowed 0.01% by weight. (CTFA)

Agency Response: This modification is not appropriate. The purpose of this provision is to allow trace amounts of impurities to be present in consumer products in cases where the manufacturing process does not allow products to be completely free of contaminants. To allow an amount as high as 1% would not serve this purpose and could allow unnecessary depletion of the Earth's ozone layer.

57. Comment: To avoid burdensome testing requirements for many compounds that have never been shown to deplete stratospheric ozone, Section 94509(e) should be applicable to only propellents and/or more volatile solvents (defined by vapor pressure). (CTFA)

Agency Response: Section 94509(e) was modified to eliminate all testing requirements (see response to Comment #55). The purpose of this

section is to prohibit the use of any ozone depleting compound in a new product, regardless of the vapor pressure or how the compound is used in the product. The requested modification would not serve this purpose and could allow unnecessary depletion of the Earth's ozone layer.

58. Comment: ARB's restriction on ODPs greater than 0.00 in Section 94509(e) is inconsistent with the Montreal Protocol which specifies an ozone depletion factor of 0.0. (CP)

Agency Response: The regulation is not inconsistent with the Montreal Protocol. The regulation restricts specified uses of ozone depleting compounds in consumer products, while the Montreal Protocol restricts production of these compounds and does not attempt to directly regulate their use. Also, neither the language nor intent of the Montreal Protocol is designed to preempt regulations focusing on the use of ozone-depleting compounds, or regulations containing stricter standards than the Montreal Protocol requirements.

F. FIFRA Issues

59. Comment: An exemption for should be added to the regulation for all products registered under FIFRA (the Federal Insecticide, Fungicide and Rodenticide Act). (SDA, CAL, CSMA)

Agency Response: It is not appropriate to provide an exemption for FIFRA-registered products. These products are significant sources of VOC emissions and must be regulated in order to fulfill the ARB's statutory responsibilities under Health and Safety Code Section 41712. For consumer products that are registered under FIFRA, the regulation allows an extra year to comply with the specified VOC standards (see section 94509(d)). This additional year will allow sufficient time for manufacturers to complete the FIFRA registration process.

60. Comment: It is inappropriate to submit registration applications for prototype products to CDFA and EPA as suggested in the TSD. (CSMA)

Agency Response: The TSD did not suggest that pesticide registration applications for prototype products be submitted to CDFA and EPA. The TSD did indicate that products making pesticide claims must be registered with state and federal agencies once safety and efficacy testing are complete. Also, the TSD mentions that the registration process must be sequential and cannot be done simultaneously. (e.g., FIFRA registration must be initiated first with the EPA, then the product must also be registered with the California Department of Food and Agriculture (CDFA).)

61. Comment: The TSD discusses only the time for initial response in the FIFRA registration process and not the total time for a final decision from EPA. (CSMA)

Agency Response: This statement is not accurate. The TSD describes the total time necessary to complete the CDFA and EPA registration process (see page 80 of the TSD).

62. Comment: FIFRA-registered products will be costly to reformulate and the expense of reformulation, testing, and registration will drive small companies out of business. (CVL, CAL)

Agency Response: As discussed in the TSD (see pages 67 to 71 of the TSD), ARB staff looked at a wide range of reformulation costs to determine the annual costs of complying with the regulation. The costs of reformulating FIFRA-registered products were fully considered in this analysis; which concludes that the cost effectiveness ratios of the regulation compare favorably with other VOC control measures adopted by the Board. In addition, staff believes that small businesses will not be adversely affected by the regulation (see response to Comment #7).

G. Confidentiality Issues

63. Comment: CTFA is concerned about whether confidentiality of registration data can be guaranteed under present California law. (CTFA)

Agency Response: Registration data submitted by companies and claimed as confidential will be protected in accordance with ARB regulations regarding the disclosure of public records (Title 17, California Code of Regulations, Sections 91000 to 91022) and the California Public Records Act (Government Code Sections 6250 et seq.).

64. Comment: A clear distinction needs to be made in the regulation between VOC emissions data and data being requested which are VOC content data. Data on product VOC content and annual sales volume should be handled as confidential data, since they are not data on emissions, but rather data used to calculate emissions. The total annual VOC content of products should also be considered confidential since this is the product of two confidential data, annual sales and VOC content. The following language should be added to 94513(c):

> "None of this information shall be considered to be emission data as that term is used in Government Code Section 6254.7." (SDA)

Agency Response: This change is unnecessary because ARB regulations already set forth procedures for the protection of confidential information (Title 17, California Code of Regulations, Sections 91000 to 91022). Under these procedures, the ARB has not yet formally determined whether VOC content information constitutes emissions data or is entitled to confidential treatment. This is a legally complex issue that the ARB is working with industry to resolve. Until such resolution, it is inappropriate to make the statement requested by the commenter.

65. Comment: Section 94515 should recognize that VOC content data obtained under this section are not emissions data and should therefore be handled as confidential data by adding the following information:

> "All information submitted by manufacturers pursuant to Section 94515 shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Section 91000-91022. None of this information shall be considered to be "emission data" as that term is used in Government Code Section 6254.7."(SDA)

Agency Response: This modification is unnecessary for the reasons identified in the responses to the two preceding comments.

H. "Sell-Through" Period

66. Comment: The one year "sell-through" period specified in the regulation is insufficient to assure clearing the shelves of every noncomplying product. The one-year period would almost certainly result in costly and unnecessary recalls that would be difficult to implement. (CSMA, CTFA, SCJS)

Agency Response: ARB has concluded that a one-year sell-through period is appropriate for the consumer product categories being considered, and that extensive product recalls would not result. The full rationale for the one-year sell-through period is set forth on pages 46 through 48 of the Staff Report.

67. Comment: The sell-through time period should not be weakened by increasing it. One year should be adequate. (CBE)

Agency Response: As discussed in the response to Comment #69, ARB agrees with the comment and has retained the one-year sell through period in the regulations.

68. Comment: The one-year sell-through period is unworkable. As a compromise, a two-year sell-through period would be acceptable. If the Board does not find this acceptable, then the Board should adopt the two-year sell-through period for the 1993 and 1994 formulations, subject to later review and revision if it does not work out to the Board's satisfaction. (CTFA)

Agency Response: As explained on pages 46 through 48 of the Staff Report, the ARB believes that a one-year sell-through period is adequate. A longer sell-through period would allow increased VOC emissions to occur and would interfere with the Legislature's mandate to achieve the "maximum feasible reduction" in VOC emissions from consumer products.

69. Comment: Smaller pharmacies usually carry less product, because they have less room but actually have a wider variety to cater to the needs of their individual customers. With a one-year sell-through period, these smaller pharmacies would end up with a lot of specialty or seasonal merchandise that do not experience a high turnover rate. Consequently, a two-year sell-through period would certainly be a reasonable compromise. (Stacey)

Agency Response: Smaller pharmacies are like other small "mom and pop" retail businesses, in that they lack the advertising, storage, and shelf space capabilities which larger businesses have. To remain viable, these small businesses use marketing strategies that help to maintain a quick profit. They select products that have high "turnover" rates and are popular with consumers. Also, they periodically check their shelves to determine which products are selling, and change their orders with their distributors according to their needs.

In addition, there is a direct relationship between the distributor's profits and the retailer's profits. In some cases the distributor directly checks inventory and stocks shelves for the retailer. Furthermore, some distributors have a guarantee on almost 100% of their products, so that if

the products are not sold over a period of time, the distributor will buy back the products or give a credit to the retailer. This provides flexibility to the small retailer.

As discussed on page 46 of the staff report, distributors may also notify their customers of the impending regulations thus allowing small businesses to prepare for any changes much further in advance. For all of these reasons, the ARB does not believe that small business will suffer a significant adverse impact as a result of the one-year sell-through period.

70. Comment: One-year sell-through would cause an extreme hardship on the small enterpreneurial establishments which typically experience a slower turnover of goods. A two-year or three-year sell-through period would be much more reasonable. (CSMA, WAIB)

Agency Response: As discussed in the response to Comment #69, the ARB has investigated this issue and concluded that small business will not suffer a significant adverse impact as a result of the one-year sell through period. At the hearing, WAIB presented the Board with survey data purporting to show that many products stayed on retailer's shelves longer than one year. However, the presented data only showed the location where products were purchased, and the date these products were manufactured. The data did not account for the length of time these products remained in the manufacturer's inventory before being transported to the distributor, nor how long the products remained in the distributor's inventory before being transported to the retailers. The results of the WAIB study are therefore inconclusive, and do not contradict the ARB staff conclusions outlined in the Staff Report and the response to Comment #69.

71. Comment: Negative environmental impacts will result from a one-year sell-through period. If a retailer chooses to destroy non-conforming products, this regulation will increase the environmental load of the VOCs and solid waste in the state. For every unit destroyed, rather than used, there will be a one-time doubling of solid waste and a corresponding increase in VOCs. (CTFA)

Agency Response: There is no indication that negative environmental impacts will result from the one year sell-through period. It would not be economically prudent for a retailer to destroy non-conforming products, given the choices and considerations discussed in the Staff Report (pages 46-48) and the response to Comment #69. Given the years of lead time provided by this regulation, the ARB also believes that manufacturers and distributors will make arrangements to ship the vast majority of non-complying products to out-of-state locations.

72. Comment: The Board should specify that the regulation is applicable only to products manufactured on or after the effective date, or, in the alternative, should allow a minimum of a two year sell-through of existing products. Federal agencies with a long history of enforcing such regulations understand that it would be impossible to effectively and fairly police a regulation where compliance depended on the innumerable and diverse retail establishments distributing the product. (PGC, CTFA)

Agency Response: A regulation based on the date of manufacturer would not achieve emission reductions as quickly as the proposed regulation

because manufacturers would be encouraged to maximize production of noncomplying products until the last possible day. Such products could then be stockpiled and sold in California for many years. Such a regulation would also have serious enforcement problems because fraudulent manufacturing dates could be placed on products, and it would be very difficult to verify that a particular date was inaccurate.

A one year sell-through period will minimize these potential problems. (For a rationale for the one-year sell through period, see pages 46-48 of the Staff Report.) The ARB and the local districts have considerable experience in enforcing other regulations which utilize time-limited sell-through periods (i.e., district architectural coatings regulations), and we believe that such regulations can be effectively and fairly enforced.

73. Comment: A simple cut-off in the manufacturing of noncomplying products on the effective date of the regulations would achieve CARB's purposes without disrupting commerce. (SCJS)

Agency Response: As explained in the response to the previous comment, this modification is inappropriate.

I. "Down the Drain" Issues

74. Comment: Studies conducted for the SDA on the environmental fate of VOCs in laundry detergents clearly shows that these products do not contribute to ozone formation because they are eliminated through biodegradation. Therefore, cleaning products that are used inside appliances and household cleaning facilities should be deleted from the current regulation. Products intended to be used inside laundry machines, sinks, and bathtubs or showers meet this criteria. (SDA, CSMA)

Agency Response: The available evidence does not demonstrate that significant emissions are eliminated through biodegradation. We believe that the commenter has drawn unwarranted conclusions from the limited information available. This information consists solely of two related modeling studies: (1) determination of ethanol emissions from a simulated washing machine in a laboratory, and (2) modeling of the "fate" of ethanol poured into the sewer system. These studies suggest that ethanol is not significantly emitted into the air during the operation of a simulated laundry machine and after the ethanol is treated at the wastewater system. By extension, the commenter concludes that these studies show that most, if not all, VOCs used in similar fashion would be similarly captured and biodegraded in the waste stream and, therefore, should be excluded from the regulation.

There are several problems with drawing this conclusion. First, the simulated laundry machine used in the study was a closed system. Sinks, bathtubs and showers are not closed systems; products used to clean these open systems are applied in thin layers to large exposed surface areas which are subject to greater evaporation rates than those encountered inside the closed laundry machine. For instance, the cleaning products are usually applied directly to the surfaces of sinks, bathtubs and showers. Laundry products, on the other hand, are usually applied directly in the water contained in the laundry machine. ARB staff believes that the difference in

application methods would affect the volatilization of VOCs applied in such a manner.

Second, products used to clean sinks, bathtubs and showers are formulated differently from laundry detergents; it is simply incorrect to claim that these cleaning products are very similar to laundry detergents. The cleaning products tend to have a large variety of VOCs which behave differently than ethanol. In addition, many aerosol cleaning products use hydrocarbon propellants, which are not captured by rinse water. These propellants are directly emitted into the air at the point-of-use and, therefore, are not realistically represented by the ethanol in laundry detergents. Thus, volatilization of the VOCs in cleaning products would probably be different than the volatilization of the ethanol used in the laundry machine and sewer system studies.

Third, the sewer system study emphasized the removal of ethanol from the waste stream at the sewer system site by biodegradation. However, the study failed to thoroughly analyze the possible removal of ethanol and other VOCs from the waste stream prior to reaching the POTW. This failure to quantify the air stripping losses occurring in the transition from the household to the publicly-owned treatment works (POTWs) is a significant deficiency of the study. Biodegradation is not expected to be the most significant removal mechanism in the sewer system prior to reaching a POTW. Thus, stripping of the VOCs from the waste stream may be a significant removal mechanism and may account for a majority of the VOCs lost prior to reaching the POTW.

Because of the concerns cited above, staff has determined that deleting cleaning products from the regulation on the basis of the studies cited by the commenter is unwarranted.

75. Comment: Dilutable general purpose cleaners should have its own subcategory separate from other cleaners and this subcategory should be exempt from regulation because down-the-drain VOCs are largely controlled by biodegradation. (PGC, SDA)

Agency Response: For the reasons identified in the response to the previous comment, the evidence does not demonstrate that VOC emissions from dilutable general purpose cleaners are effectively controlled by biodegration. Therefore, the ARB believes that an exemption for these products is not warranted.

76. Comment: Laundry prewash products should not be regulated because these products go down-the-drain into the wastewater stream where they biodegrade. The VOC's in these products have low volatility and absorb into the fabric. (RCI, DOW)

Agency Response: Unlike laundry detergents, laundry prewash products are usually applied to articles outside of the laundry machine. This difference in application methods may affect the evaporation rate of these products, thereby making the "down-the-drain" studies less applicable to laundry prewash products (see response to Comment #74). In addition, many laundry prewash products are applied in the aerosol form. For these products, the main VOC is the propellant, which is obviously emitted directly to the atmosphere and is not captured in the wash water. The ARB

therefore believes that it is invalid to apply the results of the down-the-drain studies (cited in Comment #74) to laundry prewash products. Furthermore, a significant portion of the market for laundry prewash products already complies with the standards specified in the regulation. Based on these reasons, the Board felt that it is unwarranted to delay or eliminate the regulation of laundry prewash products.

77. Comment: Even if laundry prewash products are reformulated to 22%, emissions will not occur because they're essentially down the drain products. There should be at least a one-year reprieve to further study this for next year's round. (DOW, RCI)

Agency Response: For the reasons identified in the response to Comments #74, it is inappropriate to eliminate laundry prewash products from the regulation or delay the implementation of the standards for these products. In response to the commenter's suggestion, however, in Resolutions 90-60 the Board directed ARB staff to gather additional data on this issue and return to the Board in 1991 if modification of the standard is necessary.

78. Comment: The results of the EPA data showing that 14-25% of organics in sewer systems are emitted before reaching POTW's cannot be applied to consumer products since wastewater streams contain industrial and commercial solvents that are not miscible in water. (CSMA)

Agency Response: EPA data is currently the best data available on the emissions of organics from sewer systems. While it is possible that waste stream differences may result in differing organic emissions, no information is presently available to either prove or disprove this theory. In the absence of countervailing information, the ARB staff has concluded that the EPA data supports the contention that at least a fraction of the VOCs (if not all) that enter the sewer system are emitted into the air prior to treatment at a POTW.

J. Innovative Products

(1) Efficacy of Innovative Products

79. Comment: Innovative products may unfairly need to meet higher standards of efficacy than the products they are replacing. Compliant (i.e. reformulated) products, will be less efficacious than the existing noncompliant products. (CP, CTFA)

Agency Response: There is no evidence that products reformulated to meet the VOC standards will be less efficacious. As explained at length in Technical Support Document, the ARB believes that efficacious complying products can be produced for every product category. Indeed, complying products already comprise a significant percentage of the market for many product categories. Even if one assumes that some future reformulated products might be less efficacious than some existing products, there is no good policy reason to consider this possibility in the innovative products exemption. Such a scenario is highly speculative and would be impossible to quantify. In addition, the result of the "problem" identified by the commenter would be that innovative products would result in even greater VOC reductions would otherwise be the case. This is desirable result which is

not unfair, given that the innovative products exemption is an optional process that need not be used by manufacturers.

80. Comment: It should be left to the manufacturer to provide evidence on efficacy only in those instances where it is critical. It would be expected that documentation of expected consumer acceptance of the innovative product be a part of the required information in the exemption application. (SDA)

Agency Response: The ARB believes that it is necessary to require efficacy data for every product applying for an innovative products exemption. As explained in the response to the previous comment, such data is critical to insure that increased emissions do not result from the use of an innovative product. The commenter also seems to be suggesting that "consumer acceptance studies" might serve as an adequate demonstration that the product is efficacious. While consumer acceptance may be one indication that a product is efficacious, consumers may nevertheless accept a less efficacious product due to such factors as price, product marketing, ease of use, color, odor, etc. Therefore, consumer acceptance studies alone would generally not be sufficient to demonstrate product efficacy.

81. Comment: In reality, the efficacy of a product is judged by consumers. Therefore, ARB should not rely on lab tests to determine efficacy, but rather should rely on consumers to sort out products that are less efficacious. Less efficacious products that might lead to greater emissions through increased usage would not be expected to survive the consumers' "scrutiny." (SDA)

Agency Response: As explained in response to the previous comment, consumer purchasing decisions are affected by other factors besides product efficacy. To insure that claimed emission reductions are genuine, it is not sufficient to rely solely on consumer "scrutiny" to eliminate less efficacious products.

82. Comment: The requirement in all cases that the efficacy of an innovative product be accounted for in comparison to a "representative" product is an excessive, unwarranted burden. Selecting products for comparison and assessing their efficacies could be very arbitrary and difficult to do. (SDA)

Agency Response: A comparison of the efficacy of an innovative product to a "representative product" is necessary to insure that the innovative product will not result in increased emissions. As explained on pages 44-46 of the Staff Report, the innovative products provision (section 94511) is designed to allow a manufacturers to sell a product which does not meet the specified VOC standard, but which nevertheless results in less VOC emissions due to some characteristic of the product design, delivery system, or other factors (i.e., consumers use less of a product because it is more efficacious, or the valve on the product container delivers a narrower spray with less wasted product, etc.)

There is only one way to determine whether an innovative product will result in "less" emissions; one must compare the emissions of the innovative product to the emissions of some other product selected as a standard of comparison. To insure that the comparison is a fair one, the regulation

provides that the comparison must be made to a "representative consumer product", which is defined in section 94511 as a product which complies with the applicable VOC standard and has "at least similar efficacy" as other complying products in the same product category. It is absolutely critical that the "comparison" product have at least similar efficacy to other complying products (e.g., the comparison product must be "representative" of other products that comply with the standard). Without this provision, manufacturers could select as a "comparison" product the least efficacious product on the market, even if this product worked so poorly that it had only a tiny market share. By showing that consumers would need to use less of an "innovative product" compared to a product with very poor efficacy, applicants could receive an exemption from the regulation even though the use of the "innovative" product actually resulted in more VOC emissions that the majority of currently marketed products in the same product category. This kind of loophole could convert the innovative product exemption into a counterproductive search for the least efficacious comparison product, thereby seriously undercutting the emission reductions that would otherwise have been achieved by the regulation.

To avoid this problem, the regulation clearly specifies that comparison must be made to a "representative consumer product" with similar efficacy to other complying products, and that efficacy determinations must be based on tests generally accepted by the consumer products industry. It is further specified that emission reductions must be demonstrated by "clear and convincing" evidence. These provisions will insure that emission reductions from innovative products can be convincingly demonstrated to be actual, verifiable reductions.

As pointed out by the commenter, there may be some situations where this type of demonstration is burdensome or impossible. In such situations, manufacturers have the option of simply complying with the VOC limits specified in the Table of Standards. The innovative products provision is not designed to allow applications to be made in every case, but only in those cases in which it can be clearly demonstrate that verifiable emission reductions will be achieved.

83. Comment: As proposed, the innovative products provision requires new innovative products to be only as efficacious as a representative complying product whereas a modified product has to be at least as efficacious as the original product. This provision clearly discriminates against manufacturers wishing to introduce an innovative product by modifying an existing product. The following language is proposed to alleviate this:

> "The Executive Officer shall exempt a consumer product from the requirements of Section 94509 (a) if a manufacturer demonstrates by clear and convincing evidence that, due to some characteristics of the product formulation, design, delivery systems or other factors, the use of the product will result in less VOC emissions as compared to a representative consumer product of the same product category, or if the innovative product is a modification to an existing product, the use of the product will result in less VOC emissions as compared to the reductions that would have occurred form that existing product had it been reformulated to meet the Table of Standards. (CP, SDA)

Agency Response: The response to Comment #79 explains the purpose of the first clause of section 94511(a), which allows emissions from an innovative consumer product to be compared to a "representative consumer product". This response discusses the second clause of section 94511(b), which allows emissions from an innovative product to be compared to an existing product which has been reformulated to meet the Table of Standards. The purpose of the second clause is to allow flexibility to manufacturers who make existing products that do not comply with the Table of Standards. Instead of reformulating an existing product to comply, manufacturers are allowed to use an innovative approach to achieve the same emission reductions that would have occurred if the existing product had been reformulated to meet the Table of Standards, and had retained at least similar efficacy.

The efficacy requirement is absolutely essential. Without it, this option could be used to completely circumvent the purpose of the regulation. A manufacturer would merely have to dilute an existing product with enough water so that it would meet the specified VOC limit. The "reformulated" product, which no one might ever buy because it works so poorly, could then be used as a standard of comparison to show that the "innovative" product works better and therefore results in less emissions. The efficacy requirement avoids this potentially gigantic loophole. Instead of "discriminating" against manufacturers, as alleged by the commenter, a useful option is actually being provided to manufacturers who wish to avoid the burden of choosing and evaluating a "representative consumer product".

84. Comment: The regulations should be modified to specify that the efficacy of an innovative product should be similar, not the same, as the efficacy of the existing product modified to meet the table of standards. (CTFA)

Agency Response: Because it is unlikely that an innovative product would have exactly the same efficacy as a comparison product, the regulations were modified as suggested by the commenter. This modification will not result in adverse impacts on air quality, and will allow the innovative products exemption to be more widely used.

85. Comment: EPA is concerned about the term "efficacy" since the determination appears to be subjective and undefined and appropriate test methods for determining it have not been discussed. Because the innovative products applications are expected to be submitted to the EPA as a SIP submittal, this concern would not be a cause for disapproval. (EPA)

Agency Response: Test methods to determine efficacy have not been specified in section 94511(b) because efficacy tests vary widely with individual product categories and product forms. Because of the enormous variety of consumer products on the market, it is simply not feasible to list more specific criteria to evaluate the accuracy of these tests. However, manufacturers are required to show by "clear and convincing" evidence that the use of a product will result in less VOC emissions, and to gain ARB approval for the particular test method chosen. This puts the burden squarely on the manufacturer to demonstrate that a particular test is accepted by the consumer products industry as an accurate measurement of efficacy. These provisions will insure that acceptable test results are used by the ARB in evaluating an innovative products application.

86. Comment: No test methods are available to test the efficacy of innovative products. (CTFA, PGC)

Agency Response: Consumer product manufacturers have devoted many years and millions of dollars to evaluating how well their products work. From conversations with industry representatives on this issue, ARB staff believes that efficacy tests are generally accepted by the industry for certain product categories. For other product categories, it is doubtless true that no generally accepted tests have been developed to accurately measure efficacy. We reiterate that the purpose of the innovative products provision is to provide an option for manufacturers in those cases where it is possible to demonstrate that a high-VOC product actually results in less VOC emissions than a representative product. As explained in the previous comments, this demonstration is not possible without a way to establish the efficacy of a representative product. If no test method exists to make this evaluation for a particular product category, this simply means that innovative product applications will not be approved for this category, and manufacturers will be required to comply with the VOC limits specified in the Table of Standards.

(2) Public Hearing Requirement

87. Comment: In those cases where a manufacturer does not want to submit an innovative products application as a SIP revision to EPA, there should at least be the option of not having the public hearing as required in the current regulation. Confidentiality of an innovative product application includes not only sales and other isolated bits of data; it also includes the fact that someone is applying for an innovative product exemption. The loss of confidentiality that the hearing process might create may undermine the feasibility of the regulation. The application procedure would let competitors know what type of product a company was planning to manufacture, and would give competitors time to plot marketing strategy against the new product. (PGC, CP, CTFA, SDA, CSMA, RCI)

Agency Response: As requested by the commenters, the regulations were modified to allow manufacturers to choose whether or not a public hearing will be held. This option is contained in section 94517 (and in section 94506.5 of the antiperspirant regulation) which directs the Executive Officer to submit an exemption or variance to EPA as a revision to the applicable implementation plan (SIP), upon the request of a person who has received the exemption or variance. Section 94517 also directs the Executive Officer to hold a public hearing prior to such submission; this is because EPA regulations require that a public hearing be held prior to submitting a SIP revision. (40 C.F.R. section 51.102). Since the person who has received the exemption or variance is given the option to decide whether it will be submitted to EPA, that person is therefore also given the option to decide whether a public hearing will be held.

The purpose of this provision is to provide flexibility to consumer product manufacturers. At the October 11, 1990 Board hearing, great concern was expressed that adequate confidentiality protection might not be available at a public hearing. While the Public Records Act and ARB regulations provide substantial protection for confidential information (see response to Comments #63 and 64), some manufacturers were concerned that they would be competitively disadvantaged if any information were disclosed

regarding an innovative product application. It is of course not possible for the ARB to guarantee in advance that all submitted information would meet the criteria for confidentiality protection specified in the Public Records Act; this must be a case by case determination. To respond to manufacturer concerns and encourage the use of the innovative products provision, the Board allowed manufacturers to choose whether they wish a public hearing to be held.

As noted above, section 94517 also gives manufacturers the option to decide whether the exemption or variance will be submitted to EPA as a revision to the applicable implementation plan (commonly known as a source-specific SIP revision). This provision was included because a submitted exemption or variance, if approved by EPA, will protect a manufacturer from EPA enforcement action as long as the terms of the exemption or variance are complied with. Following is a brief explanation of how this process works and why such protection is helpful to manufacturers.

An exemption or variance allows a manufacturer to avoid compliance with certain provisions of the regulations (i.e., an innovative products exemption will allow a manufacturer to sell certain consumer products which do not comply with the VOC limits specified in the Table of Standards.) Once granted by the ARB pursuant to ARB regulations, an exemption or variance is valid for purposes of state law. However, the ARB plans to submit the consumer products regulation to EPA for inclusion in the California SIP. This submission will serve to meet the ARB's mandated responsibilities under the federal Clean Air Act (see response to the following comment). Once EPA approves the regulation for inclusion in the SIP, the requirements of the regulation will have the force and effect of federal law and may be enforced by EPA in the federal courts [see Union Electric Co. v. EPA, 515 F.2d 206 (8th Cir. 1975), aff'd, 427 U.S. 246 (1976)]. This means that EPA could theoretically take enforcement action against a manufacturer that has been granted an exemption or variance by the ARB, because the source would still be out of compliance with the terms of the rule as it was approved by the EPA for inclusion in the SIP [see General Motors Corp. v United States, 110 S. Ct. 2528 (1990)].

This is a common situation; there are thousands of state exemptions or variances that are subject to the possibility of federal enforcement action. To avoid this problem, it has long been the practice in appropriate situations to request a modification of the approved SIP by submitting a source-specific SIP revision to EPA. An exemption or variance approved by EPA will become a part of the revised SIP, and EPA will no longer be able to take enforcement action based on the original SIP provision [see 42 U.S.C. section 7410; Train v. NRDC, 421 U.S. 60 (1975)]. Section 94517 therefore allows manufacturer to decide whether they want this protection from EPA enforcement action. If so, a manufacturer can request ARB to forward the variance or exemption to EPA. Since the regulations allow a manufacturer to request a SIP submission at any time, a manufacturer can avoid premature disclosure of information by waiting until the optimal time before requesting a public hearing.

The final sentence of section 94517 assures that the Executive Officer can respond appropriately to any new information learned during a public hearing. This assures that the public hearing is truly a process at which meaningful decisions can be made. To summarize, the provisions of section

94517 have been drafted to comply with the applicable law while at the same time insuring that manufacturers are given maximum flexibility to assess their needs and decide on the best course of action.

88. Comment: EPA's enforceability review of innovative product applications (section 94517) is unnecessary and will severely diminish the provision's feasibility. (CP)

Agency Response: The responses to the previous two comments discuss why section 94517 is necessary. This response supplements the previous discussion by describing the rationale for the first sentence of section 94517. The federal Clean Air Act mandates each state to develop a SIP which provides for the attainment, maintenance, and enforcement of the federal ambient air quality standards. [42 U.S.C. section 7410(a)] Because of the seriousness of California's air quality problem, it is necessary for California's SIP to include regulations which demonstrate as many emissions reductions as possible. The ARB therefore plans to submit the consumer products regulation to EPA for inclusion in the California SIP. However, EPA's policy is to reject regulations as SIP submissions if the regulations could conceivably allow an abuse of discretion by state air pollution officials. (i.e., by granting exemptions or variances in cases where EPA believes they might not be authorized under the regulations; see U.S. v. Ford Motor Company, (W.D.Mo. 1990) 31 ERC 1287, 736 F.Supp. 1539, for a discussion of the legal problem faced by EPA.)

To avoid this problem and fulfill their enforcement responsibilities under the federal Clean Air Act, EPA has informed the Board that they will not approve the consumer products regulation unless it includes the first sentence of section 94517. This section clarifies that EPA retains its power under the federal Clean Air Act to independently enforce all provisions of the consumer products regulation. For the same reasons, the first sentence of section 94506.5 was included in the antiperspirant regulation.

89. Comment: We believe that it is going too far in trying to accommodate industry in allowing the innovative products provision and ask that you remove the provision. If it is maintained in the regulation we ask that the public hearing section not be struck. (CBE)

Agency Response: The innovative products exemption provides an important alternative to the traditional "command and control" regulatory approach. For the reasons outlined in the Staff Report (pages 44 to 45) and the responses to Comments #87 and 88, the Board determined that it is appropriate both to include this section in the regulations and to include an optional public hearing provision.

(3) Other Innovative Product Issues

90. Comment: Pre-market approval by the ARB should be eliminated because it will lead to extensive delays in getting innovative products into the market. A more viable approach would be to require demonstrations that VOC emissions comply with the standard and to produce supporting data when necessary. (CP)

Because the proposed Innovative Products exemption process may be long and arduous, pre-market review and approval should only be used for product categories involving substantial emissions. Producers in all other categories should self-administer the exemptions and file letters of notification with the ARB. The ARB would then have a fixed time period in which to object to the notification letter. (SCJS)

Agency Response: Pre-market approval is essential to allow the ARB to effectively control the sale of innovative products and prevent abuse of the innovative products exemption. At this time no one knows exactly what type of innovations will be developed or how they will work. It is important that the ARB have an adequate opportunity to evaluate the documentation put forth for each product, and decide whether this documentation really demonstrates that any claimed emission reductions will actually occur.

To facilitate this process, the regulation provides a way for ARB staff to interact with a manufacturer and provide pre-market input about the kind of documentation that is necessary to demonstrate compliance. This is one purpose of pre-market approval in general, and of section 94511(e) in particular. (Section 94511(e) allows the Executive Officer to determine if an application is "complete". This procedure is modeled after the process that has long been used by the ARB and other governmental agencies in permit application decisions; see the Permit Streamlining Act of 1977, Government Code sections 65920 et seq.; section 65943).

The provisions suggested by the commenters would seriously undermine this process. The ARB would be placed in a situation where the only option is to either approve, disapprove, or take enforcement action against the sale of an innovative product, based on whatever adequate or inadequate documentation a manufacturer might decide to provide. In many cases the ARB could be faced with this decision after a manufacturer has already invested substantial resources in developing and marketing a product, thereby forcing the ARB and the manufacturer into a confrontation that might have been avoided if the ARB had been involved at the very beginning of the process.

It should once again be emphasized that the innovative products exemption is designed to be an option that is available only in those cases where it can be clearly demonstrate that verifiable emission reductions will be achieved. If a manufacturer believes that applying for an exemption will be too time-consuming or costly for a particular product, the product may simply be reformulated to comply with the VOC limits specified in the Table of Standards.

91. Comment: The ARB should adopt a de minimis exemption for any innovative products which emit 5 grams of VOC or less over the life of the product. No exemption application or notification should be required for such products, since these products emit so little VOC that the administrative burden of pursuing an innovative products exemption is simply not justified or necessary. (SCJS)

Agency Response: As explained in Section II of this Final Statement of Reasons, California's air quality problems are so serious that the ARB must devote effective scrutiny to all sources of air pollution, even small sources. The response to the previous comment explains how elimination of premarket approval would seriously comprise the ARB's ability to insure that

genuine emission reductions will be achieved from innovative products. Therefore, we do not agree that a "de minimis" exemption is appropriate.

92. Comment: The regulations should be modified to specify that innovative products should achieve equivalent (i.e., less than or equal to) emission reductions rather than "less than." (CTFA)

Agency Response: This modification is not appropriate for the reasons identified in the response to Comment #228.

93. Comment: Innovative products provision should be revised to: (1) allow compliance to be judged through comparison against fixed standards, (2) more explicitly state the burdens of the manufacturers and ARB in the decision making process, (3) afford manufacturers the chance to appeal an ARB decision and (4) allow manufacturers to make minor reformulating changes without requiring lengthy reapproval. (SDA)

Agency Response: (1) Due to the wide variety of products covered by the regulation and the enormous number of possible innovations, it is not possible to develop "fixed standards" for an innovative product to compare to. As explained in the responses to Comments #79 to 82, the provisions of sections 94511(a) and (b) allow for a standard of comparison which both provides needed flexibility for manufacturers and assures that verifiable emission reductions will be achieved.

(2) We believe the burdens of manufacturers and the ARB are explicitly and clearly stated in the regulation.

(3) The currently specified application process provides ample opportunity for a manufacturer to demonstrate that a product is eligible for the innovative products exemption. This process already has the potential to consume a great deal of ARB staff time and resources. A formal appeal process could substantially increase this administrative burden, and is neither necessary nor legally required.

(4) To avoid unclarity and potential abuse, it is not appropriate to include a general provision allowing a manufacturer to make "minor" reformulation changes. However, the regulation includes a mechanism that will allow the type of flexibility requested by the commenter. Section 94511(g) provides that an innovative products exemption can include "any other parameters determined by the Executive Officer to be appropriate". If appropriate for a particular innovative product, this provision would allow the Executive Officer to specify specific formula variations that would be within the scope of an approved exemption.

94. Comment: Manufacturers should be allowed the option to demonstrate that emissions from an innovative product are less than the VOC content limits specified in the Table of Standards in those instances where a categorical VOC content limit appears in the Table. Using the VOC content limit will allow a more objective comparison from using a "representative consumer product". (SDA, PGC)

Agency Response: When considered superficially, it does indeed sound more "objective" to allow a direct comparison to "the VOC content limits specified in the Table of Standards". On closer examination, however, it is

obvious that this is a meaningless concept. "VOC content limits" only exist on a piece of paper; there is no such thing in the real world. There are only actual, specific consumer products which do or do not comply with these limits, and these products can vary widely in efficacy, consumer use rates, and other factors. A comparison can only be made to one of these real products. To be sure that the comparison is a fair one, the regulations appropriately specify that it be made to a "representative product". (Additional discussion of the "representative product" concept can be found in the responses to Comment #82 to 84).

95. Comment: Innovative Products provision would need to incorporate language similar to language proposed by EPA in letter dated August 10, 1990 to be considered approvable. "For purposes of federal enforceability, the EPA is not subject to approval determinations made by the Executive Officer under Sections 94511, 94514, and 94515. The EPA reserves the right to make independent evaluations for compliance determinations. Affected sources may request the ARB to submit approvals by the Executive Officer to the EPA for inclusion in the applicable implementation plan approved or promulgated by EPA pursuant to Section 110 of the Clean Air Act, 42 U.S.C. 7410." (EPA)

Agency Response: As requested by EPA, the regulations were modified to include section 94517 in the statewide consumer products regulation, and section 94506.5 in the antiperspirant regulation. A detailed rationale for these sections is contained in the responses to Comments #82 to 84.

96. Comment: EPA remains concerned about the enforceability of an innovative product determination because of a replicable test method(s) and a calculational method(s) has not yet been developed. The development of criteria and examples of how this determination would be made are needed. However, the lack of criteria would not preclude approval of the rule since EPA expects innovative product applications to be submitted to the EPA as part of the SIP submittal. (EPA)

Agency Response: Section 94511(g) provides that innovative products exemptions shall specify test methods for determining conformance to the conditions established. It is further specified that these test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures. The ARB believes that these criteria are adequate to insure that innovative product exemptions can be effectively enforced. These criteria cannot be more precisely defined due to enormous variety of consumer products on the market, the broad scope of possible innovations, and the fact that no innovative product applications have yet been received or evaluated by the ARB. The issue of test methods is further discussed in the responses to Comments #82. As pointed out in these responses, an innovative product exemption will not be approved in any case where an accurate and valid test method does not exist.

97. Comment: The emissions of nonexempt VOC from an innovative product should be compared to emissions of nonexempt VOC. (PGC, SDA)

Agency Response: The regulation exempts VOCs with vapor pressures less than 0.1 mm of Hg at 20 C and 1 atmosphere. It is assumed that a compound with a vapor pressures at this level will not be emitted to the atmosphere during use of the product. Therefore, comparing total VOCs from an innovative product with total VOCs of a representative product would not

unfairly penalize nor reward an innovative product containing low vapor pressure compounds in the vast majority of cases. It is possible that there may be a few cases in which in a comparison between total VOCs would be misleading (i.e., if an innovative product contained a high proportion of low vapor pressure VOCs relative to a representative product). The regulation takes this possibility into account by specifying that VOC "emissions" from an innovative product are to be compared against VOC "emissions" of a representative product. If an applicant for an innovative product can show that certain low vapor pressure VOCs in the product will not be emitted into the atmosphere, these VOCs would not be considered by the Executive Officer in making the comparison with the representative product.

98. Comment: The following language should be added to Section 94511(h):

> "Notification under this subpart is not required for any such change that is included in an application approved under this subpart". Manufacturers may be able to establish that specific changes in formulation or product usage directions do not impact the acceptability, under this section, of the innovative product. Such conditions can be included in the innovative product application and, if approved, should not require additional notification. The proposed language is intended to clarify this consideration. (PGC)

Agency Response: The purpose of section 94511(h) is to allow the ARB to monitor any changes that may occur in an innovative product formulation, or in the emissions estimates used by a manufacturer to support the exemption application. This information is crucial for the ARB to effectively enforce any conditions established under section 94511(f), and to understand how the innovative products process is working in actual practice.

The language suggested by the commenter is not appropriate because it is unclear as to exactly what types of changes must be reported. To address the commenter's concern, however, section 94511(g) was modified to provide that "... any other parameters determined by the Executive Officer to be necessary ..." shall be included in the innovative product exemption. This provision will allow the Executive Officer to specify exactly what types of product formulations are within the scope of a particular exemption. Since the ARB expects that each innovative product application will be highly individual, it is appropriate to allow case by case decisionmaking rather than attempt to rely on the type of general notification language suggested by the commenter.

99. Comment: The manufacturer of an innovative product approved pursuant to Section 94511 should not be held to more restrictive VOC emissions than one producing a product whose VOC content equals the category limit, but whose VOC emissions are not known. (PGC)

Agency Response: While the commenter's point is not completely clear, it appears to be argued that a manufacturer should be able to compare an innovative product against any product which complies with the Table of Standards. The serious problems with this approach are explained in the responses to Comments #82 to 84. Also, it is obviously impossible to make a

meaningful emissions comparison with a product "whose emissions are unknown".

The commenter may also be arguing that the regulations unfairly allow a manufacturer to produce a less efficacious complying product which, because of greater consumer usage or other factors, results in significantly greater emissions than other complying products. The ARB can do little about this possibility except rely on the marketplace to eventually weed out products which are less efficacious. It would not be practical to promulgate "efficacy" standards for every consumer product category. There is no absolutely no reason, however, to specifically allow the existence of an "innovative product" which creates pollution at the same level as a complying product which performs poorly. As noted in many of the previous responses, the innovative products exemption is designed to be an option that is available only in those cases where actual emission reductions will be achieved compared to a "representative product".

100. Comment: Minor changes that are frequently made to personal care products would have a negligible effect on emissions estimates and should not be reported to the Executive Officer. Paragraph (h) of Section 94511 should be amended to include the following: "...or receipt of other information, which would significantly increase the emissions estimates submitted in support of the exemption application." (CP)

Agency Response: This modification is not appropriate for the reasons explained in the responses to the previous two comments.

101. Comment: The Executive Officer should be required to determine the acceptability of an innovative product exemption application within 60 days. In addition, approval of innovative product status should be automatic if the Executive Officer does not reach a decision within 90 days after acceptance of the application. (PGC, SCJS)

Agency Response: Section 94511(e) and (f) provide a total of 120 days for a decision to be reached on an exemption application. The ARB believes that this amount of time is necessary considering that the innovative products exemption is new and untried, that voluminous amounts of documentation may be submitted with an exemption application, and that ARB staff may receive several complex exemption applications at the same time. For all of these reasons, we also believe that approval should not be "automatic" if a decision is not reached within the specified time period. If a deadline were to be accidentally missed due to a mistake or dispute about exactly when an application was submitted, both the general public and industry competitors could be damaged by the inadvertent "approval" of a high-VOC product that should not have qualified for an exemption.

102. Comment: CARB's addition of the innovative products provision to the antiperspirant and deodorant regulation provides no benefit for products scheduled for a 0 percent VOC standard. (CSMA)

Agency Response: The commenter is correct. The innovative products exemption is not intended to be an option for products required to meet a 0 percent VOC standard. The provision was included as a possible compliance option for aerosol antiperspirants and deodorants, which are required to meet VOC standards of greater than 0 percent.

K. Product Registration

103. Comment: To prevent needless collection of data, the following language should be added to Section 94513(b): "In the event that no regulation has been promulgated for a product after two registrations have been filed, no further registration will be required for that product category...". (SDA, CTFA, PGC)

Agency Response: This modification is not appropriate. While one purpose of section 94513(b) is to evaluate products for future regulation, registration data is also necessary for the ARB to inventory emissions of all consumer products and track these emissions over time. To fulfill this latter purpose, it is irrelevant whether or not a regulatory standard is specified for a product. It should also be noted that section 94513(b) allows the Executive Officer to notify manufacturers that data submission is not longer necessary for a particular product category. This provisions will allow the Board sufficient flexibility to avoid the collection of unnecessary data in the future. Unnecessary data collection will also be minimized because the regulation requires manufacturers to supply data only once every three years.

104. Comment: The registration deadline of March 1, 1991 is unreasonable and virtually impossible to meet given the time frame for adoption. (CVL, CTFA)

Agency Response: We do not agree. Industry has been aware of the proposed March 1, 1991 deadline since the notice of proposed action was published in August, 1990. The nature of the information being requested for consumer products, is not unusual, should be readily available in company records, and can be provided by March 1, 1991. However, since this regulatory package was not submitted to OAL until after March 1, 1991, Section 94513 was modified to require that registration data be provided on the effective date of the regulation instead of March 1, 1991.

105. Comment: The following language should be deleted from section 94513(b): "Upon 90 days written notice the Executive Office may also require a manufacturer to supply the registration data listed in subsection (a) for any consumer product that the Executive Officer may specify." This requirement is overly broad and economically burdensome, and unnecessary for regulating air quality in California. (CTFA)

Agency Response: The legislature has directed the ARB to gather information and conduct research of the sources of air pollution in California (see Health and Safety Code section 39607 and 39701), and has granted the Board broad powers to fulfill this statutory mandate (see Health and Safety Code section 39600, 39601, and 41511). Health and Safety Code section 41712 also specifically states that the Board is to adopt consumer product regulations only if "adequate data" exists. The language cited by the commenter is necessary to give the Board sufficient flexibility to continue its research program, and to modify this program as increased knowledge reveals consumer product categories that need to be further examined. The Board also believes that the requested registration data is readily available from company records, and that, given this fact, 90 days is a more than adequate time period for companies to compile the information. By including this provision in section 94513(b), the affected

public is also being placed on notice that such information may be required in the future.

106. Comment: Before adopting any registration system, ARB should make a scientific determination that a specific product category's potential for an adverse effect on air quality warrants imposition of the registration process. (CTFA)

Agency Response: The purpose of the registration process is to gather data on emissions from various product categories. It is not possible to make a meaningful scientific determination of a product's environmental impact without first conducting a registration program to get emissions data about that product. It is also not possible to determine and prioritize additional product categories for regulation without information obtained from such a registration.

107. Comment: The Board should limit registration to the consumer products subject to regulation under the Table of Standards. (SDA, CTFA)

Agency Response: The California Clean Air Act (CCAA) mandates that the ARB achieve the maximum feasible reduction in emissions of reactive organic compounds from consumer products. Since the current regulation covers only sixteen product categories out of the hundreds that exist in the marketplace it is clear that the current regulation does not yet meet the CCAA's mandate for achieving maximum feasible emission reductions. To satisfy this mandate, it is necessary to gather information about additional product categories. This information is also necessary to inventory the overall emissions from consumer products and track these emissions over time.(see response to Comment #103)

108. Comment: ARB should specify that only marketer or licensee (whose name is on the label) be required to register products. Because many marketers use contract manufacturers, this will prevent duplicate registration. (CTFA)

Agency Response: While there is some possibility that duplicate registration data will be received, the ARB believes that the current language is necessary to avoid confusion and the insure complete collection of data from all manufacturers. Any duplicate information can be eliminated from the final registration results through staff analysis of the submitted data. However, ARB staff is currently conducting an informal consumer products survey in which the commenter's suggestion has been implemented. If the survey results indicate that accurate data has been obtained, the regulation will be modified to implement the suggestion for future consumer product registrations.

109. Comment: The VOCs excluded from the VOC content information required under Section 94513(a)(6) should be all of those exempted under 94510, since all materials listed under 94510 will not be subject to regulation. The following revisions are recommended in Section 94513(a)(6):

> "the total VOC (as defined in Section 94508) content in percent by weight, excluding those VOCs exempted under Section 94510." (SDA)

Agency Response: This modification is not appropriate. The registration requirement is not intended to be used as a method of

determining compliance with the standards established in Section 94513, but is instead a way for ARB to gather research data on consumer products (see the response to Comment #103). To accomplish this goal, it is necessary for the ARB to understand the complete picture of how all the components in consumer products work together to create VOC emissions.

110. Comment: A de minimus combined VOC level of 0.1 percent by weight should be established, and no registration should be required for products with a VOC content below this level. (SDA)

Agency Response: This modification is not appropriate. As explained in the response to the previous comment, it is necessary for the ARB to have a complete understanding of how consumer products function. This understanding could be hindered by establishing arbitrary cut-off levels that may district the overall picture of this process.

111. Comment: Charcoal lighter fluid should remain in the registration section so that accurate emissions data can be collected on which to base an appropriate standard when the category is considered next year. (Kingsford)

Agency Response: Charcoal lighter fluid was deleted from the registration section to make it clear that the Board did not intend to preempt South Coast Air Quality Management District's charcoal lighter fluid rule by adopting the statewide consumer products regulation. (see Health and Safety Code Section 41712(d)). In order to collect accurate emissions data, however, the ARB will require charcoal lighter fluid manufacturers to provide information pursuant to the Board's authority under sections 39607, 39701, and 41511 of the Health and Safety Code, and Section 91100 of Title 17, California Code of Regulations. Charcoal lighter fluid manufacturers also have the option of voluntarily providing the Board with any additional information that they feel is necessary for the Board to make an informed decision about this category.

L. Test Methods

112. Comment: The ARB should establish a regulatory framework for reconciling differences between specific VOCs regulated under section 94509 and the measurements made using the test methods specified in Section 94515. (SDA)

Agency Response: ARB staff is presently conducting research to confirm that accurate results are achieved by the test methods specified in section 94515. If problems are discovered in the measurement of specific VOCs, modifications to these test methods will be proposed in future regulatory actions.

113. Comment: Section 94515 should exclude exempted VOCs contained in a product or its emissions which are included in the results of analytical test measurements made of the product as determined under subsection 94515 (a), or exempted VOCs included on records of the VOCs making up the product reported under subsection 94515(b). (CSMA)

Agency Response: This suggestion is unnecessary since the regulatory definitions for "VOC" and "Percent by Weight" inherently subtract compounds

which are exempt. It would be unnecessary confusing for the subtraction of exempt compounds to be repeated in section 94515.

114. Comment: Any test that satisfies the Executive Officer should not be subject to further approval by the Executive Officer before being used. (SDA)

Agency Response: As suggested by the commenter, section 94515(a) was clarified by deleting the duplicative language "... to the satisfaction of the Executive Officer...".

M. Miscellaneous

115. Comment: The 2 mm Hg at 20 degrees C vapor pressure limit should be deleted from the definition of fragrance. (PGC)

Agency Response: This modification is inappropriate because it is necessary to have a vapor pressure limit for the fragrance ingredients in consumer products. The vapor pressure limit will define the scope of the regulatory exemptions for air fresheners composed of 100% fragrance (section 94510(f)), and for fragrances and colorants up to a combined level of 2% by weight in any product (section 94510(c)). The 2mm Hg vapor pressure limit was selected because essentially all fragrances and fragrance oils falls below the 2 mm Hg vapor pressure limit.

116. Comment: The dilution of a product that would be used to assess compliance with the Table of Standards should be the "principal" use concentration and not the minimum recommended dilution. Section 94509(b) should be modified to state:

> "Principal Use Concentration means the concentration of the product under the conditions of normal or predominant use. Principal use concentration shall not include recommendations for incidental use of a concentrated product." (SDA, CAL)

Agency Response: A standard based on the "principle use" of the product would be vague and unenforceable. Data on "principle use" could only be determined through sophisticated marketing surveys of the user population and would be highly dependant on the advertising and marketing of the product. In addition, other factors such as the socio-economic background of the end user and even the location of use could influence the "principle use." Because of all the factors that could influence the principle use of a product and the difficulty and expense of determining this information, the suggested modification is not workable.

117. Comment: Liquid laundry detergents, hair styling products, or products or products not otherwise specified in Section 94509(a) should not be included in the most restrictive limit provision. These products should be considered for regulation only on the basis of their primary intended use to ensure that technical and commercial feasibility for the primary use is maintained. (PGC)

Agency Response: The purpose of Section 94512(a) (Most Restrictive Limit) is to ensure that manufacturers cannot circumvent the specified VOC limits simply by displaying a product label which purports to place the product in an unregulated or lower VOC category. For example, a aerosol

product could state that it was a glass cleaner or "principally" intended to be used as a glass cleaner, but also worked great as a bathroom and tile cleaner. While the VOC limit for aerosol glass cleaners is 12%, the limit for bathroom and tile cleaners is only 5%. Without the provisions of section 94512(a), unscrupulous manufacturers could circumvent the regulation and achieve a competitive advantage over manufacturers who more accurately label their products. (Additional discussion of the "principle use" issue is contained in the response to the pervious comment.) It should also be noted that section 94512(a) states that it applies only to products for which a VOC standard is specified in section 94509(a). Section 94512(a) simply provides a way to determine the applicable VOC limits, regardless of what a manufacturer may call a product, when specific claims are made that the product is suitable for other types of uses.

118. Comment: Concentrated products will be discouraged by the regulation. (CSMA)

Agency Response: Concentrated products are not discouraged by the regulation. Section 94509(b) provides that the VOC limits specified in the Table of Standards will be applied to a product only after the minimum recommended dilution has taken place (i.e., the dilution recommended on the product label) in accordance with label directions, and therefore will not be special exemptions have also been provided for products that are highly concentrated yet not diluted prior to use. For example, there are exemptions for paradichlorobenzene air fresheners and air fresheners comprised of 100% fragrance. These air fresheners, are essentially 100 percent active ingredients, and have been allowed an exemption because they are highly concentrated and result in fewer VOC emissions over the life of the product. In addition, the innovative products provision provides a way for manufacturers to sell concentrated products if it can be demonstrated that the emissions of the concentrated product do not exceed the emissions of a product that complies with the table of standards. Finally, section 94509(b) contains an exemption for incidental use of concentrated products. This exemption will allow concentrated products to avoid technical regulatory violations based on label directions for limited special applications.

119. Comment: After the regulation is adopted the Board should continue discussions on enacting an Alternative Compliance Plan, which may achieve even greater VOC reductions than the currently proposed regulations. (SCJS)

Agency Response: ARB staff is continuing to meet with industry representatives to discuss the concept of an Alternative Compliance Plan for meeting the requirements of the regulation. No date for development and adoption of such a plan has yet been set because of the numerous implementation and enforcement issues that must first be identified and resolved.

120. Comment: The definitions of "Consumer Product" and "Institutional Consumer" should be revised. A "consumer product" includes chemically formulated products used by institutional consumer, and "institutional consumer" is so broadly defined that virtually all chemical products will be included, including products intended solely for use with medical and scientific test instruments. The Legislature did not intend Section 41712 to have the broad scope implied by these definitions. (Beckman)

Agency Response: It is not appropriate to revise the definition of "Consumer Product" and "Institutional Consumer." The Legislature established the definition of "Consumer Product" in Health and Safety Code section 41712, and the regulations use the same definition. The term "Institutional Consumer" was not defined in the CCAA, but was defined by the ARB staff taking into account the information provided by industry representatives and associations during the regulatory development period. It is necessary for the definition to include a broad scope of products because virtually all solvent-containing consumer products have the potential to emit VOCs, whether used by individuals or institutions. The problem identified by the commenter has been taken into account by including appropriate exclusions in the definitions of particular consumer product categories. For example, the definition of "glass cleaner" specifically excludes cleaning products designed solely for use on specialty or scientific equipment. The ARB believes that this category by category approach can more effectively and specifically correct any valid concerns raised by industry representatives. This approach is preferable to one which attempts to arbitrarily limit the definition of "institutional" from its generally understood meaning.

121. Comment: Small companies should be allowed twice as long to comply with the proposed VOC standards as large companies. This will allow time to reformulate products for companies with fewer resources. (CAL)

Agency Response: This provision is not necessary. Small companies are not being asked to develop completely new technology or products in order to comply. The VOC standards have been set such that there are existing complying products in every product category for every product form. It is possible for companies to utilize technology transfer from these existing products in pursuit of compliance. Like other manufacturers, small companies experiment with product components and formulation on an ongoing basis. Many companies have begun reformulation efforts already, in response to the beginning of regulation development in the fall of 1989. This essentially provides three years to reformulate until the first standards become effective in 1993, four years until the 1994 standards, and 1 additional year after the effective date for those products registered under the Federal Insecticide, Fungicide and Rodenticide Act. For these reasons, the ARB believes that compliance by the effective date of the standards is possible for small as well as large companies within the lead time period.

122. Comment: The definition of "aerosol product" should be modified to indicate that mechanical pump sprays are not considered to be aerosol products. (CSMA)

Agency Response: Section 94508(2) was modified as suggested by the commenter.

123. Comment: The comma between "lawn and garden" and "pesticides" in Section 94513(b) should be deleted for reasons of clarity. (PGC)

Agency Response: The regulations were modified as suggested by the commenter.

124. Comment: Methanol and isopropanol provide freezing point depression to water, but not boiling point elevation, as stated in the TSD. (CSMA)

Agency Response: Staff intended to convey the message that certain organic fluids, when added to various solutions found in the automobile, can impart a desired physical characteristic, such as freezing-point depression or boiling-point elevation. Staff agrees with the commenter that methanol and ethanol do not impart a boiling-point elevation to water. This error does not affect the technical basis for the proposed automotive windshield washer fluid standard.

125. Comment: The statement in the TSD that "at least one product contains a significant level of VOC due to an inorganic acid" is in error. (CSMA)

Agency Response: We acknowledge that "inorganic" should have been changed to "organic"in the statement on page 43 of the TSD. This particular section of the TSD was providing general information and, the error had no impact on the regulatory standards.

126. Comment: Mixing a hypochlorite-containing product with aqueous ammonia can produce chloramine gas, not chlorine gas as stated in the TSD. (CSMA)

Agency Response: In the statement cited by the commenter, the "chlorine gas" was used to mean "chlorine containing gas". We agree that chloramine gas more specifically describes the type of gas that can result from mixing hypochlorite-containing products with products containing ammonia.

127. Comment: CARB states that increased use of carbon dioxide as an aerosol propellant may result from this regulation, but this is very unlikely. Carbon dioxide cannot be used in water-based aerosol formulations as stated in the TSD. (CSMA)

Agency Response: Page 73 of the TSD states that "...emission of greenhouse gases is more difficult to accurately predict at this time. For instance, industry may use carbon dioxide (a greenhouse gas) as a replacement for hydrocarbon propellants in some some products." This statement is accurate and was not intended to imply that carbon dioxide will be used as a widespread replacement for hydrocarbon propellants, or that carbon dioxide will be used in water-based formulations.

128. Comment: The plastic liners in metal cans containing aqueous products do not present a barrier to recycling as stated in the TSD. (CSMA)

Agency Response: Staff stated in the TSD on page 74 that to "prevent corrosion, water-borne products are typically packaged in lined metal containers which can make recycling difficult". We believe that this is an accurate statement given current recycling technologies and collection systems. The TSD did not state that recycling of these containers is impossible.

129. Comment: The proposed regulation does not follow the schedule set out in the ARB's 1989 Consumer Product Control Plan. Either the plan or the regulation should be revised. (CSMA)

Agency Response: The 1989 Consumer Products Control Plan was a nonregulatory ARB document which outlined a proposed strategy for controlling consumer product VOC emissions. ARB staff does not plan to revise this nonbinding document, which has become outdated due to the large quantities of new information gathered since the plan was proposed. Rather than draft a new plan which will probably be outdated as quickly as the old one, the ARB believes that the public can be kept better informed through the regulatory development process outlined in the Administrative Procedure Act.

130. Comment: CARB's Education Program must be factual and not lead to counter-productive consumer reactions. Adequate factual information does not exist on the efficacy and safety of less polluting alternative products. (CSMA)

Agency Response: Staff agrees that a consumer educational program must be based on fact. Staff disagrees that adequate factual information does not exist on the efficacy and safety of all less polluting products. Many products are currently being marketed that are lower polluting and safe to use. As ARB develops educational materials, staff will thoroughly review all product information before including it in a consumer products education program.

131. Comment: Aerosol Age formularies should not be referenced in the TSD because they have not been tested for safety or efficacy or examined for commercial feasibility. (CP)

Agency Response: We do not agree. The formularies referenced in the TSD were included to point out the possibilities of reformulation for existing products. Trade journals such as "Aerosol Age" often provide sample formulations that have been designed by raw material suppliers. These formulations are often excellent starting points for a company desiring to market a particular product. The ARB did not assume or state that these referenced formulations were necessarily safe, efficacious, or commercially feasible.

132. Comment: We propose the deletion of Section 94516 (Severability) since the invalidation of most Sections would detrimentally affect the clarity and ability to comply. (PGC)

Agency Response: The regulation consists of a number of distinct VOC standards and other provisions that can be independently applied. A severability clause is therefore appropriate. It is extremely unlikely that a reviewing court would decide to invalidate so much of the regulation that the remaining regulatory language would be unclear or achieve inappropriate results. Should this occur, however, it is accepted judicial practice for the reviewing court to avoid this problem by invalidating the entire regulation. (see 7 Witkin, Summary of Cal. Law (9th ed. 1988) section 88, p. 138)

133. Comment: The definition of VOC (Section 94508(68)) should to be modified to automatically exempt any VOC that the EPA determines to be negligibly reactive at some future date. (CTFA, CP)

Agency Response: Such "automatic" incorporation of future EPA action is not permitted by the Administrative Procedure Act, which provides that all changes to state regulations must be made after formal notice and a public hearing.

134. Comment: HCFC-124, HFC-125, HFC-134, HFC-143, and HFC-152a, should be added to the list of compounds exempted under the definition of VOC (section 94508(68)). These compounds have negligible photochemical reactivity and exempting them would facilitate the necessary transition away from CFCs without adversely affecting efforts to control ground-level ozone concentrations. (DuPont, CP, CTFA)

Agency Response: It is not appropriate to exempt these compounds from the definition of VOC. The definition of VOC is based on EPA's VOC definition, and it has long been ARB policy to be as consistent as possible with the EPA definition. If EPA formally determines that these compounds have negligible reactivity and should be exempted, appropriate modifications will be made in the Board's next proposed revision to the consumer products regulation (currently scheduled for October, 1991).

N. Comments on Specific Categories of Consumer Products

Air Fresheners

135. Comment: Staff has proposed technology-forcing standards for which no known technology for air fresheners exists nor can be reasonably expected by the effective dates of the new standards. The technology-forcing future standards for air fresheners should be eliminated from the regulation. (IBT, WAIB)

Agency Response: As discussed in detail on pages 23 to 29 of the TSD, we believe that the proposed standards for air fresheners can be met within the lead time provided.

136. Comment: No justification is given in the TSD for the 70% std. and 30% future standard for single phase aerosol air fresheners. Undocumented, non-specific "conversations" do not constitute evidence of technological feasibility. In fact, no means of reformulating single-phase aerosol air fresheners of the type described in the TSD has yet to be identified. (CSMA, SLG)

Agency Response: The Chemical Specialties Manufacturers Association (CSMA), which represents a number of air freshener manufacturers, has indicated their support for the 70%. No single phase air freshener currently complies with the 30% standard. However, single phase aerosol air fresheners represent only one type of air freshener. A number of air fresheners are available in other forms (i.e., which already comply with the 30% standard, dual phase aerosol air fresheners, liquids, wicks, and gels). Therefore, the basic market demand for air fresheners will continue to be met even if single phase air fresheners cannot be reformulated to meet the 30% standard (see response to Comments #29 to 33). As explained on pages 23

to 27 on the TSD, single phase air fresheners currently contribute a disproportionately high amount of emissions based on their share of the market. Therefore, it makes little sense to permanently retain a higher standard for single phase air fresheners as compared to dual phase products. The purpose of 30% standard, effective 1/1/96, is to give single phase manufacturers an opportunity to reformulate these products to comply with the 30% standard. This additional time was provided because, based on conversations with air freshener manufacturers, the ARB believes that there is a possibility that the standards may be met by 1/1/96. If single phase aerosols cannot meet the standard by that date, the regulation is still technologically and commercially feasible for the reasons identified above.

137. Comment: The Staff Report states that examples of products have been found that can be formulated to the future effective standards in the regulation. This is not the case for single phase aerosol air fresheners. (SLG)

Agency Response: It is true that no single phase aerosol currently meets the 30% VOC standard. As explained in the response to the previous comment, however, other types of aerosol air fresheners exist which already meet the 30% standard.

138. Comment: The 30% future effective standard for single phase aerosol air fresheners will not force technology at our company since, as a small company, we are not capable of developing new chemicals with reduced VOC content. For the regulation to effectively force technology, a larger segment of the consumer products industry would have to be impacted, initiating research by large consumer product manufacturers and chemical companies. (SLG)

Agency Response: We disagree that to effectively force technology it is necessary to impact a large segment of the market. While we cannot speak for one particular company, many small businesses develop new products based on their own research, or on technology developed by other segments of the industry.

139. Comment: The 30% limit for single-phase air fresheners should be retained. (CBE)

Agency Response: For the reasons identified in the response to Comment #136, the 30% VOC limit has been retained for single phase aerosol air fresheners.

140. Comment: The regulation will require that gel air fresheners with greater than 3% VOC as fragrance cut back on the fragrance concentration to meet the standards in the regulation, increasing the solid waste disposal problem as well as VOC's associated with increased transportation of diluted air fresheners. (Ecolab)

Agency Response: Because gel air fresheners comprise such a tiny part of the consumer product market, it is not credible to believe that the proposed 3% standard will result in any significant increase in either solid waste or increased transportation emissions. Based on the survey results described on pages 23 to 29 of the TSD, we also believe that reformulation to the 3% standard is possible without reducing the concentration of

fragrance. In addition, exemption 94510(f), exempts air fresheners composed of 100% fragrance, not including water or exempt VOCs, resulting in more concentrated products.

141. Comment: The 30% standard for single phase aerosol air fresheners will not reduce VOC emissions. Since the 30% standard will be an effective ban on single phase aerosol air fresheners, emissions will result from air freshener products purchased as substitutes for single phase products which emit greater amounts of VOC per dollar and amount of fragrance delivered than single phase products. (SLG)

Agency Response: Since most single phase aerosol air fresheners are essentially 100% VOC, the 30% VOC standard would lower the VOC content significantly, resulting in less emissions. Even assuming that single phase products cannot be successfully reformulated, there is absolutely no evidence that more emissions will result from air fresheners purchased as substitutes for single phase products. Most substitutes have a significantly lower VOC content, and the ARB has received no evidence suggesting that these products emit greater amounts of VOC per dollar or amount of fragrance delivered.

142. Comment: The 30% standard for single phase aerosol air fresheners is not needed because emissions from this category will not grow due to the higher cost of these products. The cost differential between single and dual phase aerosol air fresheners will be even greater after the 70% standard takes effect since single phase products will require a more costly propellant. Concern over the possible growth of the exempt paradichlorobenzene and 100% fragrance air freshener categories was not mentioned. The TSD also fails to document any valid basis for concern over a possible shift in market share toward single-phase air fresheners. (SLG, CSMA)

Agency Response: ARB staff belief the 30% standard for single phase aerosol air fresheners is necessary. At least one manufacturer has indicated growth in the market for their single phase aerosol air freshener. As discussed on page 27 of the TSD, these air fresheners presently make up only about 5% of the air freshener market, yet contribute nearly 20% of the emissions from air fresheners due to their high VOC content. These products need to be regulated whether or not there is growth in their market share. Concern over the possible increased use of paradichlorobenzene (PDCB) air fresheners was not mentioned because growth is not expected for these products. PDCB air fresheners have a very strong odor which limits their use primarily to public restrooms. We are also not concerned with growth in the market of air fresheners with 100% fragrance, since these products, which are essentially all active ingredients, result in less VOC emissions than other air fresheners on a per application basis.

143. Comment: The establishment of the 30% future effective standard for single phase aerosol air fresheners is not justified by the possibility of future relaxation because the burden of establishing the basis for the standard rests with CARB and it is unlikely that the standard will be changed. (SLG)

Agency Response: The 30% standard is not based on "the possibility of future relaxation". The rationale for the standard is discussed in the responses to Comments #136.

144. Comment: Single phase aerosol air fresheners do not emit disproportionately high amounts of VOC. Since these products are more expensive and concentrated than most dual phase products, they emit less VOC emissions per dollar spent and amount of fragrance delivered. The cost of the product and the amount of fragrance it delivers are more important factors in determining VOC emissions than the net weight of the product. ARB's emissions and market share data should include dual purpose air freshener/disinfectants. (SLG, CSMA)

Agency Response: The ARB has received absolutely no evidence to indicate that less emissions will result from single phase aerosol air fresheners because of the reasons asserted by the commenter. Given the extremely high VOC content of these products, these assertions are simply not credible. With regard to dual purpose air fresheners/disinfectants, emissions and market share data for these products was not included due to the unique nature of the dual purpose air freshener/disinfectant category (see pages 29 to 30 and 82 to 94 of the TSD).

145. Comment: For the following reasons, an exemption is appropriate for air fresheners containing at least 98% para-dichlorobenzene (PDCB): (1) reformulation of these products is not commercially and technologically feasible; (2) removal of the exemption may result in more ozone formation since the VOCs in air fresheners that would likely replace PDCB products generally have higher reactivity; and (3) the toxicity concerns discussed in the staff report do not provide a basis for regulating PDCB air fresheners. (CPA)

Agency Response: As suggested by the commenter, an exemption was provided for PDCB air fresheners (see section 94510(g)).

146. Comment: Disinfectant aerosols should be treated separately and should not be included in the air freshener category. (CSMA)

Agency Response: Dual purpose air freshener-disinfectant aerosols were included under the air freshener category because these products are often represented for use as both air fresheners and disinfectants. Further discussion of these products is contained in the TSD (see pages 82 to 94).

147. Comment: There is no evidence that a 60% VOC standard for dual purpose air fresheners/disinfectants will provide the efficacy afforded by the current market leader. An 80% standard should be set for these products (CAL, CSMA)

Agency Response: The ARB believes that a 60% standard can allow a significant reduction in VOC emissions while providing the disinfection level which is adequate for health-care, household, and industrial and institutional (I&I) consumers. Extensive additional discussion of this issue is contained in the TSD (see pages 82 to 94).

148. Comment: The dual purpose air freshener/disinfectant category should be split into two subcategories, with an 80% VOC limit for

nonaerosols. This will encourage the conversion from aerosol to nonaerosol forms for this product. (CAL)

Agency Response: No data has been presented to support the need for subcategorizing dual-purpose air freshener/disinfectants into aerosols and nonaerosols, with an 80% limit for nonaerosols; and the ARB does not believe that such a subcategorization is warranted. In addition, placing an 80% limit on nonaerosol forms as an incentive to convert from aerosols is unnecessary, since nonaerosol forms are not subject to the regulation and therefore an incentive already exists for manufacturers to convert their aerosol products into nonaerosol products.

Automotive Windshield Washer Fluids

149. Comment: The Board should adopt an earlier implementation date for the control of windshield washer fluid in the Bay Area AQMD (BAAQMD). Specifically, a VOC standard of 10% should take affect in the BAAQMD on 2/1/91 (for dilute or bulk windshield washer fluid only). This modification will allow the BAAQMD to relax their aerosol paint rule and still meet the emissions reductions mandated by Judge Henderson's 1/1/90 court order. (CSMA, NPCA)

Agency Response: This plan was brought to the attention of the Board at the hearing. It is inappropriate to modify the regulation without prior discussion with the BAAQMD, ARB, and affected industry.

Bathroom and Tile Cleaners

150. Comment: The 5 percent VOC standard for bathroom and tile cleaners is not technologically and commercially feasible, because lowering the VOC standard to 5 percent will serve to ban the aerosol form. The amount of propellant cannot be significantly lowered in these products without a loss in efficacy. A 5 percent VOC content is insufficient to fully evacuate the contents of the can. In addition, the foam in aerosol bathroom and tile cleaners is necessary to hold the product on vertical surfaces for the proper contact time. The regulations should include a separate subcategory for aerosol bathroom and tile cleaners with a VOC limit of no less than 7 percent. (DOW, CSMA)

Agency Response: We believe that manufacturers will be able to produce efficacious products that comply with the 5 percent VOC standard within the lead time provided. The ARB Consumer Products Survey lists one aerosol bathroom and tile cleaner currently on the market with a 5 percent VOC content, indicating that reformulation is possible. Since propellants are usually the major source of VOCs in these products, it also may be feasible to use non-VOC propellants as substitutes for some or all of the currently used VOC propellants (see response to Comment # 181). Finally, the basic market demand for bathroom and tile cleaners will be satisfied even if the aerosol forms of these products cannot be successfully reformulated and become unavailable to the consumer. The ARB Consumer Product Survey shows that the majority of nonaerosol bathroom and tile cleaners already comply with the 5 percent standard. Therefore, the regulation is technologically and commercially feasible because there is no question that nonaerosol products can be successfully manufactured and made available to the consumer.

151. Comment: Our company marketed a 5% VOC bath and tile cleaner. Due to customer dissatisfaction, we raised the VOC level. Therefore, the 5% standard is not commercially feasible. (DOW)

Agency Response: Customer dissatisfaction with one particular 5 percent VOC product does not indicate that the 5 percent standard is commercially infeasible for all products. As explained in the response to the previous comment, we believe that the 5 percent standard is technologically and commercially feasible.

152. Comment: CARB should delete toilet bowl cleaners from the bathroom and tile cleaner category category. These products contain very low levels of VOCs and virtually no VOCs are emitted because these products go down the drain and biodegrade. (DOW)

Agency Response: Although toilet bowl cleaners are generally low-VOC products, the ARB Consumer Products Survey shows that some toilet bowl cleaners exceed the 5 percent VOC standard. We believe that the 5 percent standard is necessary both to reduce emissions from existing high-VOC products, and to prevent new high-VOC products from being introduced into California. Regarding the argument that VOCs from this category are not emitted because they go "down the drain" and biodegrade, the response to Comment #74 explains why the ARB has concluded that these VOC emissions are not effectively controlled by biodegration

153. Comment: The bathroom and tile category contains a wide spectrum of products making the VOC standards meaningless. (CSMA)

Agency Response: We acknowledge that the bathroom and tile cleaner category contains a wide spectrum of products. However, we have received no evidence to indicate that the 5 percent standard will ban any of the various subcategories of products within this category (i.e., mold and mildew cleaners, disinfectant cleaners, products designed for water deposits, general purpose bathroom cleaners, etc.). The 5% standard was based on the Consumer Products Survey which indicates that a wide variety of products are currently available that comply with the 5 percent standard.

154. Comment: Upon reviewing the corrected Heiden data, for bathroom and tile cleaners, we believe that no product currently complies with this standard. This is contrary to staff's belief that there are 5 complying products. (DOW)

Agency Response: The original data supplied from Heiden and Associates showed that there were 5 aerosol bathroom and tile cleaners that complied with the 5% VOC standard. Heiden subsequently supplied the ARB with corrected data which lists one aerosol bathroom and tile cleaner that complies with the 5% standard.

Engine Degreasers

155. Comment: CARB made no apparent attempt to determine actual emissions resulting from engine degreasers and therefore CSMA does not agree with the ARB's statement in the TSD that emissions may be underestimated. (CSMA)

Agency Response: The ARB correctly assumed that emissions from engine degreasers may have been underestimated. As stated on page 35 of the Technical Support Document, some engine degreaser manufacturers may not have participated in the ARB Consumer Products Survey. Therefore, some percentage of engine degreaser sales (and hence emissions) may have been unreported.

156. Comment: If engine degreasers are reformulated to lower VOC levels, then efficacy may be decreased resulting in greater product usage, or the use of gasoline or kerosene as a substitute. This could result in an increase in emissions and safety concerns. In addition, automatic emissions may increase since the purpose of engine degreasing is to allow the engine to operate at a lower temperature. These has been no apparent attempt to quantitate these factors, and calculate either actual VOC emissions or potential reductions in those emissions. (CSMA)

Agency Response: There is no indication that the proposed standards will result in either increased VOC emissions or safety problems. Effective 1/1/93, the regulation specifies a 75% VOC standard for engine degreasers. At least 4 currently marketed products already meet the 75% standard. Effective 1/1/96, a 50% standard is specified. At least 3 products already meet this standard. The ARB believes that these currently marketed products are efficacious, and has seen no evidence to contradict this belief. Therefore, the ARB believes that products can be reformulated to meet the proposed standards with no overall increase in VOC emissions from this product category. Regarding safety issues. There is no evidence to suggest that the regulation will result in increased use of gasoline or kerosene as substitutes for engine degreasers. In addition, there are already some safety concerns associated with engine degreasers being sold today. Many engine degreasers contain petroleum distillates and aromatic solvents which have a high VOC content and are highly flammable. However, some of the newer, lower-VOC products have water-based formulations which may reduce the flammability hazards.

157. Comment: We do not want to see weakened standards for engine degreasers. (CBE)

Agency Response: The ARB agrees with the commenter, and the regulation includes the originally proposed standards for engine degreasers.

Furniture Maintenance Products

158. Comment: There is not adequate data to support a 7% standard for our company's liquid furniture cleaner and preservative which needs VOCs to penetrate the wood surface and provide cleaning of the surface. Our oil-based wood cleaner and preservative is designed to clean, condition, and moisturize wood surfaces. Our product should not be grouped with the water-based products that polish and leave a waxed shine finish. The categorization of our liquid wood cleaner/preservative with liquid wax and polish products will ban our product in California. (SLG)

Agency Response: The "all other forms" category of furniture maintenance products includes a wide variety of products, including both water-based polishes and oil-based preservatives. According to the ARB Consumer Products Survey, 70% of the products in this category already

comply with the proposed 7% standard. Complying products include oil-based products that, like the commenter's product, make similar claims to preserve, penetrate and clean wood surfaces. Based on this information, ARB staff believes that the proposed standards are based on adequate data, and are technologically and commercially feasible.

General Purpose Cleaners

159. Comment: Due to the many diverse functions performed by I&I general purpose cleaners, the 10% standard is not sufficiently supported by the fact that CARB identified 36 complying products. (CSMA)

Agency Response: ARB staff has researched this issue and concluded that the majority of I&I (industrial and institutional) products, including general purpose cleaners, already comply with the proposed VOC standards. In addition, industry has not provided any convincing information to indicate that I & I general purpose cleaners require VOC limits different from household general purpose cleaners. In fact, many of the I & I product formulations are identical to those which are sold to the general public.

160. Comment: A subcategory for dual use cleaner/disinfectant sprays should be created with a 15% VOC limit. The 15% limit is necessary for these products because they are used by the health care community to clean up blood, urine, etc. (CAL)

Agency Response: No data has been presented to support the need for a 15% VOC standard for so-called "dual-use cleaner/disinfectant sprays." As discussed in the Technical Support Document (see pages 82 to 94), the majority of disinfectant products used by the health care community are dilutable concentrates which, after dilution, have a VOC content below the proposed 10% VOC standard.

Glass Cleaners

161. Comment: An 8 percent VOC standard should be specified for for glass cleaners. (PGC) The standards for glass cleaners should be 8% for pumps/liquids (to go to 6% in 1996) and 12% for aerosols. If the limit is lowered to 6%, products will become less efficacious, thereby causing increased usage and emissions. A 6% limit will prevent the sale of efficacious products for aerosol glass cleaners. Inadequate data exists to support the 6% limit for aerosol glass cleaners. (SLG, CSMA, Drackett)

Agency Response: In response to these comments and testimony presented at the Board hearing, by glass cleaner manufacturers, VOC standard for glass cleaners was modified to specify a 12 percent standard for aerosol glass cleaners, effective 1/1/93, and an 8 percent standard for all other glass cleaner forms. This modification will assure that efficacious aerosol glass cleaners will continue to be available in the California marketplace. In addition, a 6 percent standard for nonaerosol (all other forms) glass cleaners was specified to take effect in 1/1/96. The effect of this modification is to give glass cleaner manufacturers an additional 2 years to meet the orginally proposed 6 percent standard, thereby assuring that adequate time is provided for manufacturers to meet the standard while avoiding the potential problems identified by the commenters. Since

complying products already exist which meet the proposed 6% standard (see 45 to 47 of the TSD), the Board believes that noncomplying products can be successfully reformulated within the lead time provided.

162. Comment: We do not want to see weakened standards for glass cleaners. (CBE)

Agency Response: For reasons discussed in the response to the previous comment, the Board determined that modification of the standards is appropriate. With respect to nonaerosol glass cleaners (which comprise 94% of the market) the originally proposed 6 percent standard was retained even though industry was allowed an additional two years to comply.

163. Comment: The advice given to wear gloves and goggles is inappropriate and unnecessary for ready-to-use glass cleaner. Neither CPSC labeling regulations nor use experience provide any justification for such concerns. (CSMA)

Agency Response: Staff agrees that for most individuals it is not necessary to wear goggles and gloves when using ready-to-use glass cleaners. However, there may be individuals who are especially sensitive to the ingredients in glass cleaners and need to take these extra precautions.

Hairsprays

164. Comment: The 55% limit for hairsprays should be retained. (CBE)

Agency Response: For the reasons identified in the following responses, the 55% VOC standard for hairsprays has been retained.

165. Comment: CARB should establish a 70% standard for aerosol hairsprays by 1/1/93 and an 80% standard for pump sprays. (CTFA, PGC)

Agency Response: This modification is not appropriate. The regulation specifies an 80% VOC standard, effective 1/1/93, for both aerosol and pump hairsprays. As explained in detail on page 50 of the TSD, the 80% standard is technologically and commercially feasible for both pumps and aerosols. This is demonstrated by the fact that at least 41 pump and 25 aerosol hairspray formulations already comply with the proposed 80% standard.

166. Comment: Staff has proposed technology-forcing standards for which no known technology for hairsprays exists nor can be reasonably expected by the effective dates of the new standards. The proposed 55 percent VOC standard is not technologically and commercially feasible, and should be eliminated from the regulation. (IBT, CTFA, PGC, WAIB)

Agency Response: As explained in detail on pages 47 to 51 of the TSD, the proposed standards for hairsprays are technologically and commercially feasible. This is demonstrated by the fact that at least 66 hairspray formulations currently comply with the proposed 1/1/93 standard. With respect to the proposed 55 percent standard, effective 1/1/98, the technology is also already available. The Consumer Product Survey results show that there are six aerosol and 24 pump hairsprays currently on the market that can comply with the 55% standard. There is also one hairspray

product, currently marketed as a finishing spray, which has a VOC content of below 40 percent. At the present time, many members of industry are actively engaged in the development of water-based hairsprays. The regulation allows over 7 years of lead time to perfect these formulations, and we believe that this is more than adequate time to allow these products to be developed.

167. Comment: Three major resin suppliers, have indicated that the development of a new resin for hairspray would only be economically feasible if reasonable VOC content limits were established. For these resin manufacturers, hairspray resins represent only one percent of their total business. The lowest VOC limit for hairsprays in 1998 that could be expected to encourage new technology is 60 percent. However, the chances of such innovation and resulting emission reduction would be substantially better if the 1998 limit were 65 percent. (CTFA) The limit should be set at a sufficiently realistic level so as not to discourage resin suppliers from making the investment that is necessary for product development (PCG, CTFA)

Agency Response: We do not agree that a higher VOC standard is necessary to encourage product development. Technology to comply with the established future effective standards is already being developed, and as mentioned in the response to the previous comment, there are hairspray products that currently comply with the proposed 55% standard. This demonstrates that there are some resin manufacturers who have already determined that it is economically feasible to develop new hairspray resins. In addition, the California market for hairsprays is enormous. Due to the large amount of hairspray products sold in California each year, it is not credible to believe that all manufacturers will simply abandon the market if reformulated proves difficult.

168. Comment: Development of water-soluble resins, necessary to comply with 55% standard, will require approximately 9 years development time to produce commercially feasible hairspray. (CP)

Agency Response: We believe that adequate lead time (over 7 years) has been provided to develop complying products. As mentioned in the responses to the previous two comments, products are already available that comply with the 55% limit. These products use resins that are compatible with water-based formulations, and the regulation provides sufficient development time for those manufacturers who do not have water-based resins available now. The issue of lead time is further discussed on pages 79 to 81 of the TSD.

169. Comment: The 55% standard for hairsprays should be subject to an interim review by the ARB to determine if the standard is attainable by 1998. (CTFA, CP)

Agency Response: As suggested by the commenter, in Resolution 90-60 (page 4) the Board directed the Executive Officer to consult with product manufacturers and provide biennial reports on their progress to the Board. In these reports, the Executive Officer is to identify any significant problems and propose any regulatory modifications that may be appropriate in light of this progress.

170. Comment: The estimate of the number of complying hairsprays at 55% is misleading because these products are probably not "finishing" hair sprays. (PGC)

Agency Response: There is no clear distinction between a "finishing" spray and other marketing labels commonly found in the retail market. Because of this, staff did not sub-categorize the hairspray category. Often the hairspray formulation will be very similar form because of marketing techniques they will be label differently to fill a particular market niche. The 30 hairsprays that currently comply with the 55% standard conform to the hairspray definition established by staff in the consumer products regulation and likely include a wide range of hairspray types. Also, staff is aware of one hairspray product that is labeled as a "finishing spray", currently being sold in California, that has a VOC content below 40 percent.

Insect Repellents

171. Comment: For Insect Repellents, the data submitted to CARB through Heiden and Associates do not support the VOC standard. (CSMA)

Agency Response: Staff based the VOC standard for insect repellents both on information received from CSMA (through Heiden Associates) and information sent directly by manufacturers to ARB staff. While the Heiden data covered most of the solvent-based aerosol insect repellents, ARB staff analysis was based on more complete data which included information on water-based products. This aggregated data supports the proposed 65 percent VOC standard, as explained in detail on pages 55 to 57 of the TSD.

Laundry Prewashes

172. Comment: Chlorinated solvents are seldom if ever used in laundry prewash products as stated in the TSD. (CSMA)

Agency Response: As stated in the Technical Support Document, ARB research of this category indicates that halogenated hydrocarbons (i.e., chlorinated solvents) are not always, but may at times, be used as solvents in laundry prewashes.

173. Comment: Health and safety concerns associated with the presence of enzymes in laundry prewash are overestimated. (CSMA)

Agency Response: Page 60 of the TSD mentions some safety concerns that are associated with the presence of enzymes in laundry prewash products. These concerns are accurately presented. The TSD discussion does not attempt to estimate the relative health risk associated with the use of these compounds.

174. Comment: Product survey information for liquid laundry prewashes was resubmitted to correct a previous error based on incorrect information. The draft TSD listed 7 complying products before the resubmission of the data, but the final TSD listed 9 complying products. Since one of their products fell into the noncomplying category during resubmission, the number of complying products should not have increased. (RCI)

Agency Response: Based on the resubmitted data, the following changes should be made to Table 25 (Laundry Prewash Standards Summary) on page 60 of the Technical Support Document: (1) The "Number of Complying Products" should be 7 instead of 9, and (2) The "Percent of Market Complying" should be 34 instead of 36. All other portions of Table 25 remain the same.

Nail Polish Removers

175. Comment: The proposed 85% limit for nail polish removers inconsistent with CARB's mandate to achieve the maximum feasible reduction in VOC emissions from consumer products. It is technologically feasible to produce a current nail polish remover that contains 75% VOC and a 75% standard should be specified in the regulation. (NII)

Agency Response: Health and Safety Code Section 41712 requires that ARB consumer product regulations must be both technologically and commercially feasible. While it is technologically feasible to produce a 75% VOC nail polish remover, only one product currently meets this standard. In order to assure the proposed standard is also commercially feasible, a sufficient quantity of nail polish remover must be available in the market place to meet the basic market demand for this products (see response to Comment #29). The regulation therefore specifies a 75% VOC standard which does not become effective until 1/1/96. This will insure that manufacturers are provided adequate lead time to reformulate their products and thus make a sufficient amount of products available to satisfy consumer demand.

DUAL PURPOSE AIR FRESHENER/DISINFECTANTS

At the October 11, 1990 hearing, Lehn and Fink Products Group (the manufacturer of Lysol) submitted to the Board a document entitled "Comments of Lehn & Fink Products Group (October 11, 1990)". The comments contained in this document were made in response to the regulation of dual purpose air freshener/disinfectants by the original ARB staff proposal. The original proposal set a 60 percent VOC standard for products that are "...sold or advertised for dual use as air fresheners and disinfectants..." At the October 11 public hearing, ARB staff proposed a new definition for the term "Dual-Purpose Air Freshener/Disinfectant", and also proposed modifications to the definition of "Air Freshener". The 60 percent VOC standard was retained for Dual-Purpose Air Freshener/Disinfectants. At the hearing Lehn and Fink, represented by attorney James Mattesich, testified in support of these changes and requested the Board to adopt the modified provisions.

The comments of Lehn and Fink Products Group are summarized and responded to below. At the hearing Lehn and Fink also submitted approximately 5 filing boxes of additional material, the contents of which were listed and summarized in the "Appendices to the Comments of Lehn and Fink Products Group". As explained in a December 5, 1990 letter to the Board, Lehn and Fink clarified that the additional material contained documents copied from the Board's own files which had not been submitted as formal comments requiring a response, but had instead been submitted to insure that all information relied on by the Board was included in the rulemaking record. In accordance with this clarification, this additional supporting material has not been separately summarized and responded to below. Lehn and Fink's December 5, 1990 clarifying letter has been included in this rulemaking package.

Efficacy of Ethanol-Based Disinfectant Sprays

176. Comment: The active VOC in Lysol Disinfectant Spray is ethanol at 79%. Laboratory tests show that the high level of efficacy of Lysol Disinfectant Spray is due to its ethanol content. All available scientific data show that 79% ethanol is required to maintain the disinfectant efficacy of this product.(L&F)

Agency Response: ARB staff has carefully examined the available data and concluded that the proposed 60% standard is technologically and commercially feasible. A detailed rationale for this conclusion is contained on pages 29 to 30 and 82 to 94 of the TSD. Disinfectant efficacy and other issues raised by the commenter are also discussed at length in the reponses to Comments #178 to 206.

177. Comment: An effective aerosol disinfectant spray must rely to a great extent on ethanol, and ethanol alone. Glutaraldehyde and formaldehyde are toxic and not safe for general use. Peroxides, halogens and bleach cannot be safely used on many surfaces and are irritating. Phenolics and quaternary ammonium compounds do not have a sufficiently broad spectrum of activity. Even isopropyl alcohol, though safe to use, is not an effective substitute. Isopropyl alcohol will not inactivate hydrophilic viruses such as the common cold viruses. (L&F)

Agency Response: Staff does not agree with the commenter's opinion that an effective aerosol disinfectant spray must rely on ethanol alone. If this were true, the entire disinfectant market, including household and institutional uses, would be comprised of similar, high-ethanol formulations. Instead, a review of the current products marketed shows a variety of aerosol products based not only on ethanol levels, but also on a number of secondary active ingredients. These other ingredients have important disinfectant properties and range from phenols to quaternary ammonium compounds. In addition, there are many examples of effective aerosol disinfectants whose primary ingredient is not ethanol. Since these aerosol products currently enjoy a wide acceptance in the institutional market and are applied to numerous surfaces, it is reasonable to assume that the non- or lower-ethanol products are performing at least as effectively as required by their consumers.

178. Comment: Lysol Disinfectant Spray is the only aerosol disinfectant spray which carries the rarely-awarded Seal of Approval of the American Dental Association. This means that Lysol Disinfectant Spray is the only aerosol disinfectant spray which is hospital-strength, tuberculocidal, and effective against both hydrophilic and lipophilic viruses. (L&F)

Agency Response: We do not agree with the commenter's statement. The American Dental Association (ADA) is neither equipped nor responsible for verifying the disinfection claims of one disinfectant versus another. The ADA awards products with the Seal of Approval based on the efficacy claims registered for that product with the Environmental Protection Agency (EPA).

The manufacturer of Lysol Disinfectant is the only disinfectant manufacturer that has applied for the award. Based on EPA registration data, there are other disinfectant sprays which can also make similar claims

but have not applied for the award. It is therefore apparent that the awarding of the ADA Seal of Approval does not support the statements made by the commenter.

179. Comment: The draft regulation proposes to mandate a VOC level of 60% for aerosol disinfectant sprays. This proposal rests upon staff's decision that a disinfectant of significantly diminished efficacy is "good enough" for the people of California. (L&F)

Agency Response: There are two incorrect statements in this comment. First, the VOC standard applies only to products that are represented on the product container for use as both a disinfectant and an air freshener. The regulation does not specify any VOC standard at all for products that are designed solely for use as a disinfectant. More importantly, the 60% standard is not based on a belief that "a disinfectant of significantly diminished efficacy is 'good enough' for the people of California." The basis for the standard is discussed at length on pages 82 to 94 of the TSD. Among the many reasons cited as justifying the standard are the numerous alternative disinfectants that are very effective and widely available, the feasibility of reformulating existing products to maintain VOC content while maintaining efficacy, and the lack of extensive use of aerosol disinfectants in health-care facilities which have much more stringent requirements for disinfection than the average homeowner. These reasons, along with the others discussed in the TSD, support the standard and explain why Californians will still have effective dual-purpose aerosol air freshener/disinfectant sprays that are efficacious and will meet their disinfectant needs as well as the needs of the health care community.

Reformulation of Lysol Disinfectant Spray With a Hydrocarbon Propellant

180. Comment: The only technologically feasible alternate propellants are hydrocarbons. A 60% ethanol spray would require a 25-28% hydrocarbon propellant to maintain the quality of the current product and to ensure uniform coverage of the surface being disinfected. The net effect of such a substitution would be no reduction in emissions but a marked reduction in product efficacy.

Agency Response: Staff agrees with the commenter that a 60% ethanol spray would require a 25-28% by weight propellant to maintain current quality and uniform dispersion. However, staff disagrees that the propellant required for the 60% product must necessarily be a hydrocarbon propellant.

After an aerosol disinfectant product is sprayed, any liquefied propellant sprayed with the product will evaporate almost instantaneously. As the propellant evaporates, the product quickly concentrates from a 60% ethanol spray to reach an ethanol content of approximately 80% by weight at the surface. This action allows a 60% VOC product to behave like an 80% VOC liquid product on the surface to be treated. However, the liquefied propellant for such a product does not necessarily have to be a liquefied hydrocarbon.

There is at least one alternate propellant, HFC-152a, which may be used to lower the VOC content of existing products. HFC-152a, a

hydrofluorcarbon with no ozone depletion potential, has been recently been added by the EPA to its list of negligibly reactive organic compounds (see Federal Register, Vol. 56, No. 52 March 18, 1991. In addition, there may also be other potential non-VOC liquefied propellants which can help to lower the VOC content of existing products. A number of consumer product manufacturers are currently considering HFC-152a and other potential non-VOC propellants for use in their products. The commenter has not submitted any technical data to show why reformulating existing products with one of these non-VOC liquefied propellants would not be feasible. The net effect of such a substitution would be a reduction in emissions with no reduction in current disinfectant efficacy.

181. Comment: It is not reasonable to expect that a 60% ethanol aerosol spray disinfectant will be available by 1995. The physical properties of CO_2 will not permit its use as a propellant for a 60% product; CO_2 is minimally soluble in water; CO_2 and water can form carbonic acid, a highly corrosive material; and currently there is no non-hydrocarbon propellant alternative to CO_2 that will be available for products marketed in 1995.

Agency Response: We believe that complying products can be made available by 1995. The 60% regulatory standard applies to the total VOC content of the product and not just the ethanol content. Manufacturers may use any method available to them to lower the total VOC content to 60%. Therefore, a manufacturer is not limited by the regulation to using CO_2 as the propellant. As discussed in the response to the previous comment, HFC-152a, along with other compounds currently being reviewed by EPA, may enable manufacturers to lower the VOC content of their existing products while maintaining current efficacy. Because HFC-152a and similar compounds are likely to find widespread application in other aerosol products, the ARB believes that high demand from aerosol product manufacturers will ensure an adequate supply of non-hydrocarbon propellants by 1995.

182. Comment: The substitution of a flammable hydrocarbon propellant would affect the commercial feasibility of Lysol Disinfectant Spray from a Level I aerosol consumer product to a Level II aerosol consumer product. These classifications are based upon Article 88 of the Uniform Fire Code and National Fire Protection Association Code 30(B). In addition to the obvious decrease in consumer safety, a Level II or III flammability designation would severely limit the distribution and storage of Lysol Disinfectant Spray. As a Level I aerosol consumer product, Lysol Disinfectant Spray poses a storage hazard which is about the same as ordinary combustible goods such as paper towels or toilet paper. No warehouse storage limits based on safety apply. Under Article 88, warehouse storage of all Level II and III products is restricted. A Level II classification would accordingly severely limit distribution for Lysol Disinfectant Spray.

Agency Response: As discussed in the responses to the two previous comments, manufacturers are not limited to using flammable hydrocarbon propellants in reformulating their products. Even with the the substitution of a flammable propellant, the commercial feasibility of Lysol Disinfectant Spray would not be affected. Many consumer products are classified as Level II or III products under applicable fire codes. Foe example, most hairsprays are classified as either Level II or Level III. Since these products are widely available at acceptable retail prices, it is unreasonable to assume that a Level II or Level III classification would

adversely limit the distribution or commercial feasibility of Lysol Disinfectant Spray or any other dual-purpose product.

Commercial Feasibility, Technological Feasibility, and Necessity

183. Comment: The Board has not and cannot demonstrate that the 60% standard is technologically and commercially feasible in the case of Lysol Disinfectant Spray and other high-level disinfectants. The proposed regulation is therefore invalid.

Agency Response: As discussed in Comments #177 to 183 and pages 82 to 94 of the TSD, the ARB believes that the proposed 60% standard is technologically and commercially feasible.

184. Comment: Staff's presumption is that the basic market demand for aerosol disinfectant/air fresheners can be satisfied by a product which provides significantly less health protection than the current market leader, Lysol Disinfectant Spray.

Agency Response: ARB staff did not make the assumption identified by the commenter. A detailed discussion of this issue can be found in the response to Comment #179 and on pages 82 to 94 of the TSD.

185. Comment: Because home disinfectants such as Lysol reduce the number of organisms present in the environment, they will have an effect on reducing the number of infections in the population. Therefore, their potential socio-utility is high. Since the relative contribution of Lysol to reactive VOCs in the atmosphere is less than 0.055 percent of all VOCs emitted by vehicles, stationary sources, and consumer products, the overwhelming socio-utility of Lysol indicates that any reduction in its efficacy would not be accompanied by a corresponding increase in air quality. Therefore, according to traditional medical risk-benefit analysis, it would be inappropriate to reduce the effectiveness of high quality home disinfectants such as Lysol.

Agency Response: The premise of this comment is invalid because the 60% standard for dual-purpose aerosol air freshener/disinfectant sprays will not result in reduced efficacy of the disinfectant products available to the public and health care community. As discussed in the TSD, staff identified alternative products and formulations that can achieve the level of disinfection required in homes and the health care community but at significantly lower levels of VOC. In addition, the ARB believes that current dual purpose products can be reformulated to comply with the standard without a loss in efficacy (see response to Comment #181).

186. Comment: The proposed 60% standard is not necessary. There is no evidence that the proposed regulation will result in a 1.1 ton per day reduction. Staff presumes that all present users of Lysol Disinfectant Spray will switch to the 60% product, although there is no evidence that supports this. Therefore few, if any, actual VOC emission reductions may result.

Agency Response: While it is possible that actual emission reductions will be considerably less than 1.1 tons per day, these reductions can be achieved if Lysol is reformulated to meet the 60% standard. The commenter

has conducted market studies which suggest that many consumers are loyal to product brand names, regardless of factors such as cost. If Lysol Disinfectant Spray is reformulated to 60% VOC, it is highly likely that consumers will continue to purchase the reformulated product since it is highly unlikely that Lehn and Fink will market the product in a negative manner to discourage its purchase. It is also unlikey that consumers will be able to physically detect any difference in the reformulated product. Thus, it is reasonable to assume that consumers will continue to purchase and use a reformulated Lysol Disinfectant Spray, and it is therefore possible that the 1.1 ton per day reduction can be achieved.

Instead of reformulating Lysol, however, the commenter may instead decide to cease representing Lysol as a dual-purpose aerosol air freshener/disinfectant spray. If this option is chosen, the product would no longer qualify as a dual-purpose product, and no VOC standards would be specified by the regulation. If consumers continue to use the product at current usage levels even if the product is no longer marketed as an air freshener, then emission reductions will be considerably less than 1.1 tons per day. However, ARB staff believes that if such products are no longer marketed as air fresheners, then the use of the products as air fresheners will eventually decrease, over time. The long term net result would be to decrease emissions, although the actual level of reduction would be much less than the level which would have been achieved through reformulation.

187. Comment: Numerous California health associations, as well as individual professional practitioners, have urged the Board to avoid taking any action which would have an effect of reducing the efficacy of existing aerosol disinfectant sprays and the benefits which they provide.

Agency Response: After meeting with ARB staff to clarify any misunderstandings regarding the provisions of the regulation, both the California Association of Hospitals and Health Systems (CAHHS) and the California Dental Association (CDA) retracted the earlier written comments cited by the commenter. In addition, both associations also submitted written comments stating that they did not expect the regulations to adversely impact their member facilities. Furthermore, Dr. Neil Flynn, Associate Professor of Clinical Medicine and Director of the AIDS and Related Disorders Clinic at U.C. Davis, retracted a comment letter which he submitted earlier in the regulatory process. Dr. Flynn then submitted another comment letter in which he supported the regulation and stated that the arguments for regulation are "highly rational, and they conform with my understanding of disinfection procedures for hospitals and clinics." These examples clearly show that, once the provisions of the regulation were fully explained, the health associations and private practitioners who wrote to the ARB agreed with the potential benefits of the regulation and expected no adverse effects from its provisions.

188. Comment: The proposed 60 percent standard is arbitrary and capricious in its effect on the aerosol disinfectant category as compared with other product categories. For no other product category does staff question the social value of a product. The Technical Support Document leaves no doubt that ARB staff considers alcohol-based hard surface disinfectants to be unnecessary products. In addition, no similar limit is proposed for any other disinfectants or for any other product category on the basis of advertising.

Agency Response: ARB staff has neither made a judgement that alcohol-based disinfectants are unnecessary products nor stated that these products have no social value. To the contrary, the ARB has ensured that these products will continue to be available by creating a separate category for dual purpose air freshener disinfectants. Had this category not been created, the "most restrictive limit" provision of the regulation (section 94512(a)) would have applied, thereby requiring the 30 percent VOC standard for all aerosol air fresheners to be applied to dual-purpose products. Regarding the commenter's second point, the regulation was modified to eliminate all reference to product advertising, except for representations made on the product container, or on stickers, labels, packaging, or literature attached to the product container (see Section 94508(3), 94508(21) and 94512(a)).

189. Comment: Staff dismisses consumer convenience as unimportant only for this product category. Convenience is a primary element of consumer acceptance and commercial feasibility.

Agency Response: Staff did not dismiss consumer convenience as unimportant for this product category. As discussed in the response to the previous comment, the category of "dual/purpose air freshener disinfectants" was specifically created so that these products would continue to be available to consumers.

Lysol Disinfectant Spray Compared to K-Mart Spray Disinfectant

190. Comment: Contrary to staff's apparent "belief," K-Mart Spray Disinfectant does not contain ethanol at all. The active ingredients in the K-Mart Spray are isopropanol at 34.39% and quaternary ammonium compounds.

Agency Response: We believe the commenter may have misinterpreted the data presented in the Technical Support Document and Staff Report. In these documents, staff reported that there was at least one dual-purpose aerosol air freshener/disinfectant spray which, complied with the 60% VOC standard at the time. Staff did not identify the complying product as K-Mart Spray in either report. In addition, nowhere in these reports or in any other published ARB report does the ARB state that K-Mart Spray contains ethanol. It is merely stated that the complying product had a total (as opposed to ethanol) VOC content less than or equal to 60% by weight.

191. Comment: K-Mart Spray is much less efficacious than Lysol Disinfectant Spray, and does not establish the technological and commercial feasibility of a 60% ethanol aerosol disinfectant spray. The active ingredient is isopropanol, which is not considered to be a high-level disinfectant because of its demonstrated inability to inactivate hydrophilic viruses. Of the five prototype organisms selected by staff as the efficacy standard, the K-Mart Spray Disinfectant kills only three. It does not destroy *Pseudonomas aeruginosa* or, according to EPA's records and the product label, tuberculosis. Of course, it is completely ineffective against polio and the common cold viruses. In addition, K-Mart Spray Disinfectant exhibits valve-spitting, which requires a 30-minute drying time, and emits an overpowering smell of isopropanol, which clearly diminishes consumer acceptance.

Agency Response: As discussed in the TSD (see pages 82 to 94), the standard for dual-purpose aerosol air freshener/disinfectant sprays is technologically and commercially feasible. The standard of 60% by weight limits the total VOC content of these products. The standard does not establish a limit for ethanol content, as the commenter seems to suggest. In addition, the commenter has identified "efficacy" criteria based on the specific performance characteristics of Lysol Disinfectant Spray. The ARB does not feel that this is a valid approach and has not followed it in establishing other regulatory standards.

Regarding the other problems with K-Mart Spray alleged by the commenter, staff has not received any information to verify that the alleged valve-spitting occurs. Such a problem, with its required 30 minute drying time, would theoretically reduce consumer acceptance to the point where the product is no longer commercially feasible. However, the available evidence suggests that this is not a significant problem, since K-Mart Spray is currently purchased by consumers throughout the country in significant quantities. In addition, the "overwhelming" nature of the product's scent is solely a subjective opinion. Since the K-Mart product appears to be doing relatively well in its niche of the market, K-Mart shoppers who purchase this product would seem to disagree with the suggestion that K-Mart Spray has unacceptable characteristics.

192. Comment: The proposed 60 percent VOC standard provides no air quality benefit whatsoever. When comparing the weight percentages of ozone-forming material, scientific evidence shows that the ozone-forming potential of the K-mart product is greater than that of Lysol Disinfectant Spray. The organic matter hydrocarbon equivalent (OMHCE) number for Lysol Disinfectant Spray is 47.6.% and the OMHCE for number for K-Mart Spray is 49.3%. Thus, if consumers were to respond by substituting the "complying" 60% K-Mart product for Lysol Disinfectant Spray for any purpose, including possible use in the air, ozone levels would actually increase.

Agency Response: We do not agree with the commenter's analysis. First, there is no evidence to support the suggestion that all products reformulated to meet the standard will contain isopropanol. As stated previously, the standard of 60% by weight limits the total VOC content and does not specify how that limit is to be achieved.

Even if all products were reformulated with isopropanol, currently-accepted knowledge about reactivities indicates that we would still achieve reductions in ozone formation with a reduction in VOC content, regardless of whether that VOC is ethanol, isopropanol or any other VOC. The commenter supports his contention that no net air quality benefit would be achieved by comparing the organic matter hydrocarbon equivalent (OMHCE) number of isopropanol with ethanol. This is an invalid comparison since it compares only ozone-forming potential under artificial smog-chamber conditions and does not account for multi-day episodes and other conditions typical of actual meteorology and emission profiles found in California. The response to Comment #22 contains a more detailed discussion of why it is inappropriate to establish a regulation that considers the relative reactivity of the different VOCs used in consumer products.

Is Lysol a Disinfectant or an Air Freshener?

193. Comment: Aerosol disinfectant sprays as a product category are plainly disinfectants, not air fresheners, dual purpose or otherwise. Consumers perceive aerosol disinfectant sprays as a separate product category, and the staff's assumption that these products are actually dual purpose products is unsupported by substantial evidence. The assumption ignores the clear economic disincentive to such use; the fact that aerosol disinfectant sprays are twice as expensive as air fresheners. Since it is clearly uneconomical for consumers to use disinfectant sprays in lieu of air fresheners, it is counter-intuitive to assume that they do so.

Agency Response: As discussed in the TSD, the marketing of these aerosol air freshener/disinfectant sprays often puts them in direct competition with products that are specifically labeled as air fresheners. Credible evidence has not been presented to ARB staff to substantiate the contention that consumers perceive these products only as disinfectants. The notion that there is a clear disincentive to using these dual-purpose products as air fresheners also has not been proven; the mere fact that the dual-purpose products are twice as costly as air fresheners does not prove this point.

Lehn and Fink, the makers of Lysol Disinfectant Spray (LDS), submitted marketing studies to ARB staff which suggest that consumers are very loyal to specific brands, regardless of cost. Lehn and Fink also submitted marketing survey data which suggested that some consumers of LDS also purchase other air fresheners. By inference, Lehn and Fink suggests that consumers perceive dual-purpose products as a separate category. However, any number of alternative conclusions can also be drawn from these limited market studies. For instance, consumers may prefer the "sanitizing" scent of LDS at times when the typical air freshener scent is undesirable. Other consumers may also use dual-purpose products under the misguided notion that they are actually "cleaning" the air. Still other consumers may prefer the scent of dual-purpose disinfectant/air fresheners in different rooms of the household (such as the bathroom and kitchen) while they prefer the scent of ordinary room air fresheners in other rooms. In short, staff believes that the marketing of these products clearly establishes a link between these products and air freshening/deodorizing (see pages 82 to 94 of the TSD for additional discussion of this issue).

194. Comment: The basis for the decision that aerosol disinfectant sprays should be singled out from other disinfectants for special treatment is that their advertising takes advantage of the product's natural side effects of reducing unpleasant odors during the disinfection process. The Staff Report thus improperly classifies aerosol disinfectant sprays as "air fresheners," although their primary purpose is as it has always been - disinfection.

Agency Response: As discussed in the response to previous comment, we believe there is a clear link between dual-purpose products and dedicated air fresheners. Therefore, the ARB believes that it is appropriate to classify these dual-purpose products as a subcategory of "air fresheners" in the regulation.

195. Comment: Lysol Disinfectant Spray advertising copy for product brochures, as well as for direct mail consumer couponing and TV and radio commercials is all based on the hard-surface disinfectant function of the

registered product; none claims that the consumer is disinfecting the air. Advertising copy does state that the product smells good and eliminates odors as part of the disinfection process and associated use. Consumers perceive this advertising message as a hard-surface disinfectant message, not an air freshening message.

Agency Response: This comment is addressed in the response to the previous two comments. In addition, the record contains a videotape of several Lysol television commercials. We believe that consumers watching these commercials would clearly perceive that the product is being used as an air freshener.

196. Comment: There is no evidence to support staff's "belief" that product advertising leads consumers to significant use of Lysol Disinfectant Spray as an air freshener. Staff has also presented no data to show that advertising "dual-use" products strictly as disinfectants will lead to a reduction in VOC emissions. The shelf survey that was done to support this belief proves nothing regarding consumer use of the product. Substantial data has been presented to the staff that shows consumers don't misuse Lysol Disinfectant Spray as an air freshener, and that most consumers use air fresheners and disinfectants for their respective proper purposes.

Agency Response: As stated in responses to Comments #193 through #195, we believe that the marketing of dual-purpose aerosol air freshener/disinfectant sprays has clearly established a link between these products and air fresheners.

197. Comment: Staff's suggestion that, because Lysol Disinfectant Spray appears on some supermarket shelves next to air fresheners it should be regulated as an air freshener, oversteps the bounds of the most basic common sense and must be rejected by the Board. This suggestion is equivalent to suggesting that peas are carrots, ice cream is frozen pizza, shampoo is toothpaste and bleach is starch. Lysol Disinfectant Spray is also shelved next to automotive waxes and house and garden pesticides and the same "facts" would justify including them in any of these product categories.

Agency Response: In the TSD discussion, staff intended to state that dual-purpose aerosol air freshener/disinfectant sprays are very often found within the air freshener section next to other competing air fresheners on supermarket shelves. Within this context, it is reasonable to suggest that these products are marketed and sold such that they are in direct competition with air fresheners.

198. Comment: It is true that aerosol disinfectant sprays, as a class, can be used for incidental air freshening. In this regard, however, they are no different from other primary use products. The rationale of exclusion applied to those primary use products mandates exclusion of aerosol disinfectant sprays, as indeed staff originally proposed.

Agency Response: We do not agree with the analogy used by the commenter. As stated in Comments #193 through #197 and in the TSD, the ARB maintains that some products are marketed for dual-use as a disinfectant and aerosol air freshener. With these comments and discussions in mind, it is our staff's position that the air freshening aspect of these products is not incidental to its disinfection uses, and it is inappropriate for these

products to be excluded from the air freshener category as suggested by the commenter.

199. Comment: Lysol Disinfectant Spray also has been shown to remove particulate matter associated with tobacco smoke and pollen from the air. Water cannot do the same thing, nor can an ordinary air freshener, contrary to staff's belief.

Agency Response: It is stated on page 93 of the TSD that any liquid, including ordinary air fresheners and plain water, can "clear" a cigarette smoke-filled room if sprayed at the proper droplet size. The commenter asserts that water cannot remove particulate matter associated with tobacco smoke and pollen from the air. This claim is incorrect and is contrary to basic air pollution engineering principles. To prove this point, one need only review the principle of water scrubbing used in particulate matter control systems throughout the world. These systems rely on the principle of water contacting particulate matter in a droplet size sufficient to ensure good contact. If the commenter is claiming that water is not effective in removing particulate matter from the air, then it follows that these systems in widespread use are not working as designed and that existing particulate control regulations need to be substantially modified.

Use of Bleach for Disinfecting

200. Comment: The Technical Support Document (TSD) suggests that household bleach could be used as a substitute for aerosol disinfectant sprays. For the following reasons, bleach is not a viable alternative to aerosol disinfectant sprays:

(a) Bleach has unreliable efficacy in soils such as saliva and blood.
(b) Bleach can cause substantial eye injury.
(c) Exposure to bleach can aggravate existing heart problems or respiratory difficulty.
(d) Bleach irritates the nose and skin, even when used according to label directions.
(e) Bleach will pit and discolor metals. In concentrations greater than 500 ppm, bleach is very corrosive (especially to aluminum), as well as unpleasant to use.
(f) Bleach destroys fabrics and painted wood. The evidence does not support the suggestion by staff that bleach is so harmless that 3700 ppm can be used in the typical laundry load. 3700 ppm is the equivalent of adding one gallon of bleach to a load of laundry. Not only would it completely destroy colored fabrics, it would also create substantial toxicity concerns.
(g) Inadvertent mixture of bleach with other cleaning compounds containing ammonia (such as Top Job) may result in a noxious cloud of hydrochloric acid.
(h) Bleach is unreliable as a disinfectant because it is not stable, even in its original container. It has a very limited shelf life and must be used relatively quickly. (L&F)
(i) Better, more effective disinfection occurs when it comes in the form of a simple to use, high-quality product that does not have to be mixed, measured, mopped on and wiped up as bleach does.

Agency Response: As discussed in the TSD, ARB believes that there is sufficient evidence which demonstrates that bleach is an effective disinfectant. The commenter suggests nine reasons why bleach is not a viable alternative to using aerosol disinfectant sprays. Each of these points is addressed as follows:

a. The commenter has not provided any information to support the claim that bleach has an unreliable efficacy in soils such as saliva and blood. In addition, all disinfectants, including bleach and aerosol spray disinfectants, work best after the soil is removed prior to disinfection. As discussed in the TSD, the Centers for Disease Control (CDC) in Atlanta recommend disinfection of a hard surface only after precleaning of the surface. Furthermore, staff's survey of hospitals in California revealed that the vast majority of hospitals surveyed did not even use aerosol disinfectants, preferring bleach and liquid disinfectants instead. If the commenter is correct in his contention that bleach has unreliable efficacy in soils, then it would appear that improper disinfection is taking place in many California hospitals.

b. It is true that bleach can cause substantial eye injury. However, it is also true that numerous products and compounds can cause substantial eye injury, if used improperly (e.g., oven cleaners and windshield washer fluids). Bleach has been in use for decades, and there is no evidence that increased use of bleach as a disinfectant would result in proportionately more eye injuries.

c. As explained in (b), staff contends that proper use of the product in accordance with proper precautions from the manufacturer should minimize this risk, if any exists.

d. Nose and skin irritation can occur from the use of many products, including aerosol spray disinfectants. As noted in the TSD, the potential for respiratory irritation is one of the reasons why hospitals do not use aerosol disinfectants to a significant degree. Thus, although bleach may irritate the nose and skin for some people, this does not appear to be a major health concern for the majority of consumers.

e. In the TSD on page 94, staff discusses the use of a 500 ppm free available chlorine solution for high-quality general disinfection (as recommended by the CDC). The use of any bleach solution with a concentration greater than 500 ppm free chlorine was not recommended by ARB staff.

f. Staff agrees with the commenter on this point. The TSD contained an error regarding typical bleach concentrations found in laundry. The 3700 ppm number noted in the TSD refers to total bleach concentration. Since common household bleach is approximately 5% free chlorine by weight, the typical free chlorine concentration found in laundry would be about 185 ppm. However, this error does not affect staff's conclusions regarding the feasibility of using bleach as a viable alternative to aerosol spray disinfectants.

g. Manufacturers of both bleach and cleaning products highly recommend against mixing bleach with other cleaning compounds containing ammonia. Inadvertent mixture of bleach and ammonia-containing products, although potentially hazardous, is not a significant health problem. No evidence to prove otherwise has been submitted by the commenter.

h. As discussed above, the commenter has submitted no evidence to substantiate the claim that bleach is unreliable as a disinfectant. All available evidence suggests just the opposite; that bleach can be an extremely effective and relatively inexpensive disinfectant.

i. The commenter has submitted no data comparing the relative disinfection performance of bleach versus aerosol spray disinfectants under typical household use conditions. Dilutable concentrates are widely used as disinfectants and there is no evidence to suggest that they perform less effectively than aerosol disinfectants.

201. Comment: CARB staff did not recommend, for any other product category, that consumers move wholesale to an entirely different alternative, as CARB staff did in aggressively recommending the widespread switch to bleach by existing Lysol disinfectant spray users.

Agency Response: Staff did not recommend that consumers switch to an alternative for dual-purpose aerosol air freshener/disinfectant sprays, or for any other product category. In the TSD, staff merely described the non-aerosol disinfectants and low-VOC air fresheners that already exist as alternatives to dual-purpose aerosol products.

Use of the Center for Disease Control (CDC) Guidelines

202. Comment: The CDC publications and the 24 hospital survey do not adequately support staff's assertion that a 60% ethanol product or bleach provide the same level of efficacy provided by Lysol Disinfectant Spray. The classification of disinfectants as "low, intermediate, and high", which staff adopted from the CDC Guidelines are very general. Staff assumes that the intermediate level of disinfection recommended for environmental surfaces is the equivalent of an EPA hospital-strength disinfectant which is effective against *Mycobacterium tuberculosis*. The CDC definition goes on to state, however, that the intermediate level of disinfection should also provide protection against most viruses. "Most" viruses include the major class of hydrophilic viruses for which 80% ethanol is the standard of efficacy.

Agency Response: In the TSD, ARB staff did not refer to specific brand names and did not assert that a 60% ethanol product or bleach would provide the same level of efficacy as provided by Lysol Disinfectant Spray. However, staff's documentation in the TSD does support the feasibility of complying with the 60% standard using several different approaches while achieving the necessary level of disinfection (see TSD pages 82 to 94).

Regarding the commenter's second point, ARB staff simply reported what the CDC guidelines recommend. In the CDC guidelines, it is stated that

"intermediate" level disinfection can be achieved by using either: (1) an EPA-registered "hospital" disinfectant chemical germicide that has a label claim for tuberculocidal activity, or (2) solutions containing at least 500 ppm free available chlorine (TSD, pp 90-91). Furthermore, the CDC guidelines state that intermediate-level disinfection results in the destruction of Mycobacterium tuberculosis, vegetative bacteria, most viruses, and most fungi, but does not kill bacterial spores. Thus, according to the CDC guidelines, the use of either of the two methods cited above will achieve intermediate-level disinfection. The CDC guidelines do not explicitly specify the destruction of hydrophilic viruses or the use of 80% ethanol disinfectants as necessary to achieve intermediate-level disinfection.

203. Comment: The 24-hospital survey conducted by staff simply shows that hospitals may not find it economical to purchase aerosol disinfectant sprays in institutional quantities. Hospitals do use such products, as is evidenced by the institutional market for this product and discussed by staff. Lehn and Fink has direct supply contracts with four California hospitals.

Agency Response: While there is no doubt that some hospitals occasionally use aerosol spray disinfectants, only a very small fraction of California hospitals are using these products in institutional quantities. From our discussions with various hospital association representatives, the ARB believes that these products are not more widely used because hospitals are achieving adequate disinfection from the liquid disinfectants currently being purchased. This strongly suggests that, in an environment with even more crucial disinfection needs than a typical household, liquid disinfectants are meeting the rigorous health standards in hospitals with significantly less VOC emissions than aerosol spray disinfectants.

204. Comment: The CDC Guideline cited by staff which proposes that efficacy against the AIDS and Hepatitis B viruses should be adopted as the standard for virucidal disinfectants is nonsensical since the AIDS virus, outside the presence of human blood, and Hepatitis B virus are easy to kill compared to hydrophilic viruses. The professionally-recognized standard for an effective virucidal agent is activity against poliovirus.

Agency Response: We do not agree. That activity against poliovirus is recognized by the infectious control community as the efficacy standard for virucidal agents.

We also do not agree with the commenter's assertion that use of the CDC guideline is nonsensical. Since the CDC is recognized worldwide for their leadership in the control of infectious diseases, it is reasonable to assume that the CDC guidelines contain accurate valuable information on hard-surface disinfection in health-care settings. As discussed in the response to Comment #202 and in the TSD, the CDC guidelines classify disinfectants into three levels of disinfection against various types of microorganisms, not just the Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HPB).

Staff recognizes the well-known fact that the HIV virus can be easily killed outside the presence of human blood. Contrary to the commenter's statement, staff did not propose adopting the principle that efficacy

against the HIV and HPB virus be adopted as the standard for virucidal disinfectants. Because of current public concern for these viruses, the TSD simply discussed the level of disinfection necessary to kill HIV and HPB viruses. In addition, staff addressed these particular viruses because the commenter has often expressed a concern that the proposed 60 percent standard may result in reduced efficacy against these viruses. As discussed in the TSD, staff believes that a 60% VOC dual-purpose aerosol air freshener/disinfectant spray can provide adequate disinfection against these and other microorganisms.

205. Comment: The second CDC guideline is cited for the proposition that CDC does not recommend alcohol-based products for disinfection. The guidelines do recommend the use of commercially-based disinfectants, including alcohol-based products. It is the use of undiluted alcohol that is not recommended by the guidelines, due to the fact that it evaporates too rapidly and therefore provides insufficient contact time. Moreover, the guidelines do not recommend bleach in concentrations over 500 ppm available chlorine, in recognition of the corrosive properties of such solutions. Five-hundred ppm is not a sufficient concentration for effective hard-surface disinfection according to registered EPA labels for bleach.

Agency Response: The ARB agrees with the first point made by the commenter and notes that the TSD contains an error regarding CDC recommendations for use of alcohol as a hard-surface disinfectant in dental-care facilities. As stated by the commenter, it is the use of alcohol without evaporation-inhibitors which the CDC guideline does not recommend. However, we do not agree with the commenter's second point regarding EPA-registered bleach labels. The label on clorox bleach, the market leader for household bleaches, recommends using 1/4 cup to 1 cup of bleach for every gallon of water (depending on the intended use) to clean and disinfect stains, soils, toilet bowls, kitchen sinks, bathtubs, showers, floors, vinyl, tile, woodwork and appliances. These recommended dilutions will result in solutions with 500 ppm to 2000 ppm free available chlorine. Thus, the EPA-registered Clorox Bleach label not only provides for a minimum usage concentration of 500 ppm free available chlorine for effective disinfection, but it also indicates that effective disinfectant solutions with up to 2000 ppm are safe for use on a variety of surfaces and materials.

Legal Comments

206. Comment: Lehn & Fink's right to a 45-day period in which to review the administrative record prior to the Board hearing on this matter has been denied. A petition for Writ of Mandate and Complaint for Declaratory and Injunctive Relief is pending: Lehn & Fink Products Group v. California Air Resources Board, Los Angeles County Superior Court, Case No. BS003296.

Agency Response: The pleadings in the above-referenced case are contained in Appendix VII to Lehn & Fink's October 11, 1990 comments. The pleadings fully set forth the Board's response to Lehn & Fink's allegations in the lawsuit. Pursuant to an agreement between the ARB and Lehn & Fink reached several days prior to the October 11, 1990 hearing, Lehn & Fink agreed to dismiss the suit.

207. Comment: There is no factual basis for the regulation's classification of aerosol disinfectant sprays as "air fresheners", when the primary purpose of these products in disinfection. The regulation therefore significantly oversteps the Board's legal authority under the California Clean Air Act.

Agency Response: As explained in the response to Comments #193 through #199, an reasonable factual basis exists for this classification. The classification is therefore within the Board's legal authority under the California Clean Air Act and Division 26 of the Health and Safety Code.

208. Comment: The Board should exempt from regulation all products, including disinfectants, that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA; 7 U.S.C. section 136-136y) because, for the following reasons, the Board lacks the legal authority to regulate these products:

(a) Only the California Department of Food and Agriculture (CDFA) is authorized by state law to set VOC standards for FIFRA-registered products, and for these products the regulation impermissably intrudes on the regulatory scheme established under the Food and Agriculture Code. Health and Safety Code section 41712 does not authorize the Board to regulate FIFRA-registered products; this section only authorizes the Board to review FIFRA-registered products to determine whether it is technologically and commercially feasible and necessary to reduce VOC emissions from these products. This is the only reasonable way to harmonize the separate regulatory schemes established by the Legislature for the ARB and CDFA.

(b) FIFRA preempts the ARB from adopting VOC standards for FIFRA-registered products.

(c) The regulation would impermissably allow the ARB to approve for use in California new disinfectant formulations which have not been registered with either the EPA or CDFA, thereby upsetting the federal-state scheme of regulation which Congress intended to establish under FIFRA and ignoring the balancing of risks against benefits which is required of CDFA by statute before any pesticide can be used or sold in the state.

(d) Because the regulation impermissably intrudes on CDFA's regulatory scheme for handling the air quality aspects of registered disinfectants, the regulation violates the necessity, consistency, and nonduplication review standards of the Administrative Procedure Act.

Agency Response:

(a) & (b) The ARB clearly has the authority to regulate FIFRA-registered products under Health and Safety Code section 41712, and the ARB's authority is not preempted by any provision of state or federal law. The rationale for this conclusion is discussed at length on pages 42 to 44 of the Staff Report.

(c) The regulation does not allow the ARB to approve any pesticide for use in California; the responsibility for approval of pesticides for California use remains with EPA and CDFA. The regulation simply provides that no person shall sell, supply, offer for sale, or manufacture for sale in California, any consumer product which does not meet the specified VOC standards. Pesticides which have been reformulated to meet the standards must still be independently registered with EPA and CDFA and approved for California sale pursuant to FIFRA and any other applicable state and federal laws. To facilitate this registration process, the regulation [section 94509(d)] allows an extra year to comply for all FIFRA-registered products.

(d) The regulation does not violate the standards of the Administrative Procedure Act. As explained on pages 42 to 44 of the Staff Report, CDFA and the ARB have concurrent jurisdiction to regulate FIFRA-registered products, and the regulation does not impermissably intrude on CDFA's regulatory authority.

209. Comment: The regulation draws a distinction between ordinary "air fresheners" and products which are "sold or advertised for dual use as air fresheners and hard surface disinfectants". This distinction is either:

(a) unenforceably vague because the terms "dual use" and " aerosol spray disinfectant" are not defined, or

(b) violates the equal protection clause of the United States Constitution because similarly situated products are treated in dissimilar ways. Aerosol disinfectant sprays have hard-surface disinfection as their primary function, and are similarly situated to other types of air fresheners that are exempt from the regulation (i.e., air fresheners that function primarily as cleaning products). In addition, the regulation has the effect of preventing an aerosol disinfectant spray from telling the public that it provides a scent, which impermissably judges these products by a different standard that all other products.

Agency Response:

(a) The distinction is not unenforceably vague. The language identified by the commenter was deleted from the definition of "Air freshener", and the regulation was modified to include a new definition for "Dual/Purpose Air Freshener/Disinfectant". The commenter testified in support of the revised definitions at the October 1990 public hearing.

(b) The regulation does not violate the equal protection clause of the United States Constitution. It is well-settled that a regulatory statute is not invalid merely because it does not cover the whole of a permissible field; regulatory agencies may validly regulate only a portion of an overall problem at any one time. [see 8 Witkin, Summary of Cal. Law (9th ed. 1988) Secs. 599-601; People v. International Steel Corp. (1951) 102 C.A.2d Supp. 935, 941, 226 P. 2d 587]. The exemptions provided for certain types of air fresheners simply reflect the fact that the ARB does not at this time have adequate data to set appropriate VOC standards for these products. VOC standards may be set for the exempted products in the future, if warranted by the data gathered pursuant to section 94513 of the regulations.

In addition, the regulation does not prohibit a manufacturer from stating that a disinfectant product "smells good". In order to be considered a dual purpose product, the regulations provide that the product must be "...represented on the product container for use as both a disinfectant and an air freshener...". This determination must be made on a case by case basis by reading the language on the product container; it is not possible to list specifically the many statements that a reasonable person would consider to be "air freshener" representations. However, it is clear that simply stating that a disinfectant provides a pleasant scent is not a representation that the product can be used as an air freshener. Basically, the regulations take the common sense approach that: "If it is stated on the product container that the product can be used as an air freshener, it will be regulated as an air freshener". This is the same approach used for other regulated consumer products under section 94512(a).

210. Comment: The regulation's proposed restriction on advertising (commercial speech) of aerosol disinfectant sprays violates the First Amendment of the United States Constitution.

Agency Response: The regulation originally provided that the air freshener VOC standards would apply to products which were "...sold or advertised..." for dual use as air fresheners and a disinfectants. While we do not agree that this language violates the First Amendment, the regulation was modified to delete all references to product advertising.

211. Comment: The regulation violates the Commerce Clause of the U.S. Constitution by restricting advertising in California by out-of-state manufacturers. A state statute may not lawfully be applied to prohibit an out-of-state company from broadcasting into California advertisements originating from out of state which are completely legal in the state of their origin.

Agency Response: While we believe that the commenter has incorrectly characterized the effect of the regulation's original language, the regulation was modified to eliminate all references to product advertising. (See response to the previous comment)

212. Comment: The regulation's expressed preference for bleach constitutes a violation of the Commerce Clause of the U.S. Constitution by discriminating in favor of in-state companies. The market leader in the bleach category is the Clorox Company--a California-based corporation which would, under the proposal, gain a substantial competitive advantage over Lehn & Fink, and out-of-state concern.

Agency Response: While it is difficult to respond to a legal argument as bizarre as this one, the Administrative Procedure Act nevertheless requires a response. While the Staff Report states that bleach is one possible disinfectant alternative to dual use air/freshener disinfectants, the regulation in no way expresses a "preference" for bleach. The regulation in fact does not not set any standard at all for disinfectant products; standards are set only for products designed for use as both an air freshener and a disinfectant, as evidenced by specific representations set forth on the product container. It is absurd to believe that the regulation will cause consumers to suddenly start using bleach instead of

disinfectant products, and it is clear that no interference with interstate commerce will result.

213. Comment: ARB staff's recommendation that consumers use common bleach as a substitute for registered aerosol disinfectant sprays would violate controlling federal law. Generic brands of bleach are generally not registered as disinfectants, and FIFRA prohibits the use of unregistered products as disinfectants and the use of registered products in a manner inconsistent with label directions.

Agency Response: The commenter is correct in stating that the law prohibits the use as a disinfectant of any substance not registered as disinfectant with EPA. It is also unlawful to use a registered disinfectant in a manner inconsistent with label directions. (see FIFRA, 7 U.S.C. section 136(j); Food and Agriculture Code sections 12991, 12995). Some brands of household bleach have been registered as disinfectants through the EPA and CDFA registration process, and others have not. As suggested by the commenter, the law could be strictly interpreted to prohibit a consumer from using a dilute solution of nonregistered bleach to disinfect a household surface. The Staff Report and Technical Support Document should have more clearly stated that consumers should only use brands of bleach that have been formally registered as disinfectants, and should only apply these brands in a manner consistent with label instructions. The staff's basic conclusions regarding the disinfectant properties of bleach, however, are accurate as applied to brands of bleach that have been registered as disinfectants, and whose labels permit the types of uses identified by ARB staff and Center for Disease Control Guidelines. (See also the responses to Comments #202 through #205)

214. Comment: The term "commercial feasibility" means the the product resulting from the imposition of the regulatory standard will continue to be accepted by consumers (measured by sales) and can be produced, packaged, promoted, and distributed by a manufacturer, at a cost that consumers will pay allowing the manufacturer a reasonable profit.

Any analysis of costs in the context of commercial feasibility necessarily requires a balancing of the costs of regulation with the benefits of compliance. This includes analysis of the net social benefits of health-based regulations. An analysis is also required of the costs of producing, packaging, promoting, and distributing a product after the imposition of the regulatory standard. Finally, if the regulatory standard has the consequence of eliminating a product from the market, some other manufacturer must be available to fill the void. The other manufacturer must have both the economic resources and the reputation to successfully market the replacement product.

Agency Response: The commenter has invented a definition of commercial feasibility which is completely unsupported by any legal precedent. In addition, the proposed definition would require such an extensive, time-consuming, and onerous analysis that it would be virtually impossible to demonstrate that any VOC standard would meet the proposed test of "commercial feasibility". The Legislature could not have intended such a result when it instructed the ARB in Health and Safety Code section 41712 to achieve "...the maximum feasible reduction in reactive organic compounds emitted by consumer products..."

The ARB believes that the appropriate test for "commercial feasibility" is the test outlined on pages 13 and 14 of the Staff Report. Further discussion on this issue in also contained in the responses to ***Reference all our reponses in the "Commercial Feasibility" section of the Final Statement***

215. Comment: The regulation violates the California Environmental Quality Act (CEQA), because the Board did not adequately consider that ozone levels would actually increase if consumers switched to K-Mart Disinfectant Spray as a result of the 60 percent VOC limit. This increase will occur because of the higher reactivity of the VOCs contained in K-Mart Disinfectant Spray.

Agency Response: As explained in the response to Comments #190 and #192: (1) ozone levels will not increase if consumers switched to K-Mart Spray, and (2) it is not credible to believe that such a switch in consumer purchasing would occur. Because the adverse environmental impacts claimed by the commenter will not result from the regulation, CEQA was not violated.

RESPONSES TO 15-DAY COMMENTS

Following are summaries and responses to comments received during the 15-day comment period for this rulemaking. The 15-day notice issued December 13, 1990 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. These comments are summarized in the above portions of this Final Statement and are not separately summarized below.

P. Exemptions

216. Comment: A new sentence was added to the end of Section 94510 (b). The addition of that sentence changes substantively the effect of the regulation as it was when it was originally noticed. The addition of the last sentence to the modified text completely eviscerates the original meaning of the subsection. It provides that no amount of prudent precaution will produce an exemption if product intended for another state is inadvertently sold to a retail outlet in California. That change is not "(1) nonsubstantial or solely grammatical in nature, or (2) sufficiently related to the original text that the public was adequately placed on notice that a change could result from the originally proposed regulatory action." The commenter urges that the last sentence be removed. (SDA)

Agency Response: Section 94510(b) provides that, if specified conditions are met, a manufacturer or distributor located in California may sell consumer products that do not comply with the VOC standards specified in section 94509(b). The specified conditions are that the individual can demonstrate that the product is intended for shipment or use outside of California, and that the individual has taken reasonable prudent precautions to assure that the consumer product is not distributed to California.

The rationale this exemption is that there is no reason to regulate the VOC content of products that will not be used in California. The exemption protects the interests of manufacturers and distributors who sell

noncomplying products to out-of-state locations. Without the exemption, these manufacturers and distributors could be accused of a technical violation of the regulations, if they entered into the sales contract within California (e.g., they have sold a consumer product "...in the state of California..." (section 94507)) for an out-of-state sale. At the same time, the "reasonable prudent precautions" language protects honest individuals and companies from being victimized by unscrupulous competitors seeking to evade the law (see response to Comment #49). The exemption complements the exemption provided in section 94510(a), which provides that the regulations do not apply to any consumer products manufactured in California, for shipment and use outside of California.

The last sentence of section 94510(b) provides that the exemption does not apply to consumer products that are sold, supplied, or offered for sale by any person to retail outlets located in California. The purpose of this final sentence is to prevent unscrupulous individuals from selling noncomplying products to retail drugstores, grocery stores, and other retail establishments located in California, and then attempting to defend against an ARB enforcement action by claiming that they had taken some sort of "reasonable prudent precautions" to insure that the products were not distributed in California. Because California retail establishments are primarily engaged in the sale of products directly to California consumers, there is no credible claim that sales to such establishments could be "intended for shipment and use outside of California."

The commenter has also stated that the proposed change is beyond the scope of the 45-day notice. We do not agree. The original proposal specified standards for consumer products and provided a number of exemptions to these standards. The APA permits substantial modifications to the proposed regulations, and it is clear that the addition, modification, or elimination of a proposed consumer product exemption is devoted to the same subject or issue (e.g., the regulation of consumer products) and is well within the scope of the original notice. (see Schenley Affiliated Brands Corp. v. Kirby, (1971) Cal.App.3d 177)

217. Comment: The language in Section 94510(b), "Exemptions", would prevent mail order operations in California from selling their products to other states since these operations could be defined in this regulation as "retail outlets", but not "manufacturers or distributors". (CSMA)

Agency Response: Section 94510(b) will not prevent mail order operations in California from selling their products to other states. It is clear that the last sentence of section 94510(b) only applies when there are sales to retail outlets located in California. If the specified conditions are met, the exemption in section 94510(b) is still available for sales from mail order operations to out-of-state locations. The general rationale for section 94510(b) is contained in the response to the previous comment.

Q. Ozone-Depleting Compounds

218. Comment: Section 94509(e) should be modified by changing the phrase "halogenated compounds" to "halogenated organic compounds". This modification will clarify that new bleach and scouring liquid formulations will not be required to be tested for their ozone-depleting potential. (TCC)

Agency Response: In response to the types of concerns raised by the commenter, section 94509(e) was modified to specify exactly which ozone-depleting compounds are prohibited from use. All compounds known to have an ozone depletion potential greater than 0.00 were included, and references to lists of halogenated compounds contained in other documents were eliminated. Also, the requirement for the testing ozone-depleting compounds before use was deleted. This requirement was eliminated because of the difficulty at the present time in clearly identifying a replicable test method for determining a compound's ozone-depletion potential. These modifications will clarify the regulation and avoid the potential problems identified by the commenter.

R. Product Registration

219. Comment: "Charcoal lighter fluid" should not have been deleted from section 94508 (Definitions) and section 94513 (Registration). This deletion is inconsistent with Resolution 90-60, which essentially requires the ARB to retain the definition and the registration requirements for charcoal lighter fluids. (CSMA, RCI)

Agency Response: In Resolution 90-60, the Board directed the Executive Officer to survey the amount of VOC emissions from charcoal lighter fluid in California. This language merely directs the Executive to collect the emissions information; it does not require that the information must be collected pursuant to the registration requirements of the regulation (section 94513). As explained in the response to Comment #111, information on charcoal lighter fluid will be collected pursuant to the Board's authority under sections 39607, 39701, and 41511 of the Health and Safety Code, and section 91100 of Title 17, California Code of Regulations.

To address a related issue raised by the commenter's point, the ARB notes that the registration requirements of the regulation are necessary even though the Board could require the same information pursuant to the authority cited above. Thousands of manufacturers sell consumer products in California. Many of these manufacturers are small business or out-of-state companies that have little experience with air quality regulations, restricted access to California legal materials, and little knowledge of governmental data gathering authority. It is therefore important that the regulation clearly specify the responsibility of these manufacturers to supply specified data to the ARB. This is the best way for the affected public to be given notice of what requirements will be imposed on them by the ARB.

S. Test Methods

220. Comment: We support the addition of Section 94515(b), although we believe that the term "daily records" is inappropriate, since batch processing records are compiled by batch, not by day, and a batch may take several days to complete. The same change should also be made to section 94506(b) of the antiperspirant regulation. Records of production, when it occurs, should be sufficient to demonstrate compliance. (CSMA, CTFA, PGC)

Agency Response: The purpose of Section 94515(b) is to allow manufacturers an alternative way to demonstrate compliance with the requirements of the regulation. For manufacturers who wish to confirm that

their products comply by lack the resources to conduct product testing under section 94515(a), section 94515(b) allows compliance to be demonstrated by calculating a product's VOC content from the chemical constituents used to make the product. To avoid abuse of this alternative, the regulation specifies that it can only be used if the manufacturer keeps accurate daily records of the amounts and chemical composition of the product constituents. This very detailed reporting will allow ARB inspectors sufficient information to determine if the regulatory standards have been met. Effective enforcement will also be assured through the requirement that the records be kept for three years (the applicable statute of limitations under Health and Safety Code Section 42705)

It is important to note that the regulation specifies that accurate daily records be kept, but does not dictate the particular accounting method that may be employed to achieve accurate results. If a company manufacturers batches that take several day to complete, daily records can be compiled simply by noting that a particular batch is being processed for a several day period, and by calculating the amount processed each day. One must keep in mind that section 94515(b) provides an alternative that need not be used if a particular manufacturing process does generate sufficient detailed records to allow an accurate compliance determination to be made. The regulation does not specifically allow batch processing records to be used because of the difficulty in clearly defining this term, and assuring that records will exist in sufficient detail to determine compliance.

221. Comment: In Section 94515(b), to correct a typographical error the word "article" should be inserted as follows: "...requirements of this article may also...". (PGC)

Agency Response: As suggested by the commenter, the regulation was modified to correct this typographical error.

T. Miscellaneous

222. Comment: The industrial spray buff definition covers products which may also fall under other definitions and should be deleted. It is also inappropriate to include an industrial product in this consumer products regulation. (CSMA)

Agency Response: The industrial spray buff definition (section 94508(42)) was developed with the cooperation of industry. The definition adequately distinguishes spray buff products from other floor products, and is specifically limited to products that restore a worn floor polish with the use of a buffing machine. This excludes household products, which are not designed to be restored with a buffing machine, and products designed to completely remove an old finish or produce a new finish. Although the term "industrial" was used to reflect the currently used nomenclature, these products are used on floor in schools, hospitals, and many other institutions. These products are therefore "consumer products" as that term is defined in Health and Safety Code Section 41712 (e.g., a chemically formulated product used by household and institutional consumers), and it is appropriate to gather data on them under section 94513(b).

223. Comment: Although having no practical effect at this time, the current definition of "wax" (Section 94508(69) is too broad to be applied to

personal care products. Since the definition is in the regulation because of other household product categories, the definition should be explicitly limited in its application to those products. (CTFA)

Agency Response: The definition of "wax" was included in the regulation to clarify the definition of "wood floor wax". A broad definition of "wax" is necessary due to the wide variety of wood floor waxes that currently exist. The problem suggested by the commenter will not occur because the regulatory standard for "wood floor wax", as that term is defined in the regulation, will apply only to products that are "consumer products" within the meaning of Health and Safety Code Section 41712.

224. Comment: HSIA recommends that Section 94509(f)(2) be amended to allow for the exemption of consumer products containing a higher concentration of ODP substances as impurities. Specifying a level of 0.01 percent by weight as a "de minimis" level will place a significant burden on individuals in the state by requiring costly analysis of products by the retailer, wholesaler, or manufacturer. HSIA recommends that the de minimis level be made consistent with the requirements of the U.S. Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard for material safety data sheets (i.e., 1 percent). (HSIA)

Agency Response: Section 94509(f)(2) does not require consumer products to be tested. If the particular ingredients used by a manufacturer are unlikely to contain ozone-depleting impurities, a manufacturer may decide that testing is not necessary. If a manufacturer decides that testing is necessary, ARB staff does not believe that analyzing a product for impurities at 0.01 percent would be significantly more expensive than testing for impurities at 1.0 percent. The intent of this provision is to exempt trace impurities in a product. Many consumer products contain ingredients at levels less than 1.0 percent. By using 0.01 percent as a cutoff, only these compounds which are truly impurities will be exempted. In addition, the OSHA requirements which are not relevant to the establishment of a regulatory standard.

225. Comment: There is a typographical error in the definition of "Percent/By/Weight" in Section 94508 (57) of the statewide regulation. There was a substitution of "/" for "-" in the text of the adopted regulation. This error should be corrected by substituting the subtraction symbol "-" for the division symbol "/" between "B" and "C", to read as follows:

(57) Percent/By/Weight...

$$\text{Percent/By/Weight} = \frac{B - C}{A} * 100$$

(PGC, SDA)

Agency Response: As suggested by the commenter, the regulations were modified to correct the typographical error.

U. Innovative Products and Federal Enforceability

Both the antiperspirant regulation and the statewide regulation contain sections entitled "Innovative Products" and "Federal Enforceability"

(sections 94503.5 and 94506.5 in the antiperspirant regulation; sections 94511 and 94517 in the statewide regulation). In both regulations the language is identical except for different references to the appropriate section numbers of each regulation. In discussing this language some commenters cited the section numbers of the antiperspirant regulation, while other commenters cited the numbers of the statewide regulation. To avoid confusion and duplicative comments, all comments on the "Innovative Products" and "Federal Enforceability" language are discussed below by citing the section numbers of the statewide regulation.

226. Comment: All efficacy requirements should be eliminated from section 94511(b). Efficacy is not an appropriate consideration for an innovative product exemption. For many categories of consumer products, there is no industry standard by which to estimate product efficacy except for the willingness of the consumer to purchase and repurchase the product. Failure to satisfy the consumer in the marketplace should be the only standard used to judge products in deciding whether to allow an exemption. (PGC, CTFA)

Agency Response: This modification is not appropriate for the reasons identified in the responses to Comments #79 to 81.

227. Comment: In section 94511(a), emissions of nonexempt VOC from an innovative product should be compared to the emissions of nonexempt VOC from a complying product of the same category. In section 94503, ARB identified a number of appropriate exemptions including those fragrances and colorants to 2% and for VOC with low emissions' potential due to their low volatilities. These exemptions are directed at the Table of Standards Section (Section 94502(a)), and their citation is also needed in section 94511 to allow a valid comparison of an innovative product with a representative product. (PGC)

Agency Response: The regulation exempts VOCs with vapor pressures less than 0.1 mm of Hg at 20 C and 1 atmosphere. This exemption is based on the assumption that compounds with vapor pressures at this level will not be emitted to the atmosphere during product use (see response to Comment #44). Therefore, in the vest majority of cases, comparing total VOCs from an innovative product with total VOCs of a representative product would not unfairly penalize nor reward an innovative product containing low vapor pressure compounds. It is possible that there may be a few cases in which in a comparison between total VOCs would be misleading (i.e., if an innovative product contained a high proportion of low vapor pressure VOCs relative to a representative product). The regulation takes this possibility into account by specifying that VOC "emissions" from an innovative product are to be compared against VOC "emissions" of a representative product. If an applicant for an innovative product can show that certain low vapor pressure VOCs in the product will not be emitted into the atmosphere, these VOCs would not be considered by the Executive Officer in making the comparison with the representative product.

228. Comment: Sections 94511(a) & (i) currently specify that the use of an innovative product must result in less VOC emissions than a representative consumer product. These sections should be modified to provide that an innovative product must result in VOC emissions less than or equal to a representative consumer product. (PGC, CTFA). An innovative

product should not be held to a more stringent standard of VOC emissions reductions than a product complying via the Table of Standards. This is especially appropriate for subsection (i) in which adopted language would otherwise negate an approved exemption for an innovative product already in effective compliance with an as yet unanticipated, lowered VOC standard. (PGC)

Agency Response: This modification is not necessary. Due to the variables and complexity in estimating VOC emissions in a consumer setting, it is very unlikely that an innovative product would produce emissions exactly equal to the emissions from a representative product. In addition, the requirement is appropriate because, given the difficulty in making accurate emission estimates, it is desirable to have a margin of error to assure that emissions from an innovative product are in fact less than emissions from a representative product.

229. Comment: The word "shall" in the second and last sentence of subsection 94511(g) should be changed to "may." There may be situations where the Executive Officer would not need all the criteria specified in the second sentence nor need all the criteria specified in the last sentence to grant an exemption. Accordingly, the Executive Officer should be given discretion to not require all of the listed criteria for every exemption if such criteria are not pertinent to establishing an enforceable regulation. (PGC, SDA)

Agency Response: This modification is inappropriate. The listed criteria are crucial to insure that compliance with each innovative products exemption can be objectively determined, and we can conceive of no realistic scenario in which these criteria would not be necessary. It should be noted that these criteria are the minimum necessary to evaluate compliance. To insure that appropriate conditions can be established for many types of consumer products and thousands of possible innovations, the regulation allows the Executive Officer the discretion to establish appropriate parameters on a case by case basis.

230. Comment: In section 94517 (Federal Enforceability) the ARB should reduce the time that the Executive Officer has to submit the exemption or variance to the Environmental Protection Agency. The modified language provides that the application shall be submitted within 180 days of a request. This time should be reduced to 30 or 60 days (PGC suggested a time period of 120 days). The information that is needed to be submitted to the EPA will have been previously submitted by the applicant for the exemption or variance. Little change should be required to forward it on to the EPA. We see no reason why 6 months would be needed. (SDA, PGC)

Agency Response: A time period of 180 days will be necessary in some cases. EPA regulations require that a public hearing by held prior to submitting a SIP revision to EPA (40 CFR section 51.102). The public hearing process specified in section 94517 may require 60 days at the outset of the process. New information learned at the hearing may also result in a modification of an innovative product exemption, which would necessitate that new documents be prepared. In addition, it is quite possible that the applications at the same time, thereby seriously taxing staff resources.

Apart from these considerations, it is just not a simple process to submit source-specific revisions for inclusion in the state implementation plan (SIP). It takes a great deal of ARB staff time to evaluate each submittal and insure that it complies with the complex EPA regulations governing this area. For all of these reasons, a time period of 180 days is provided to guarantee that adequate time will be available.

231. Comment: A typographical error was made in section 94517 of the statewide regulation. References are made to an exemption granted under "sections 94503.5" and "94503.5(f)". These references incorrectly cite sections of the antiperspirant regulation; we assume that the correct references should be to the analogous sections "94511" and "94511(f)" of the statewide regulation. (CTFA)

Agency Response: The regulations were modified to correct this typographical error.

V. Comments on Specific Categories of Consumer Products

Bathroom and Tile Cleaners

232. Comment: Resolution 90-60 directs the Board's Executive Officer to gather additional data on the feasibility of a five percent VOC standard for bathroom and tile cleaners. This statement, plus statements made by Board members at the hearing, demonstrate that in adopting the five percent standard the Board did not first determine the standard's technological and commercial feasibility, as required by Health and Safety Code section 41712. (L&F)

Agency Response: The commenter has completely misconstrued the intent of the Board. In Resolution 90-60, the Board found that adequate data exists to support the adoption of the proposed standards, and that the standards are technologically and commercially feasible. For bathroom and tile cleaners, the rationale for this finding is set forth on pages 32 to 34 of the TSD and in the response to Comment #150.

At the October 11, 1990 public hearing, the Board heard a number of vociferous objections from industry regarding the proposed standards for bathroom and tile cleaners. In response, the Board determined that it was appropriate to create a process under which industry and ARB staff could continue a dialogue on these issues. In Resolution 90-60, the Board therefore directed the Executive Officer to gather additional data on bathroom and tile cleaners, and to return to the Board in 1991 if this data indicates that modification of the standard is necessary. In essence, the Board was providing a way to insure that dissatisfied members of the regulated public could continue to have a voice in the regulatory process. It is unfortunate that the Board's willingness to listen has been misconstrued through the use of out-of-context statements in the Resolution and hearing transcript.

233. Comment: There is a lack of adequate data, as required by Health and Safety Code section 41712, to support the 5% standard for aerosol bathroom and tile cleaners. This is clear from Resolution 90-60, which states : "...Board directs the Executive Officer to gather additional data on the feasibility of a five percent VOC standard for... bathroom and tile

cleaners...". Accordingly, the Board should defer action on bathroom and tile cleaners until 1991. (CSMA, L&F, DOW)

Agency Response: For the reasons identified in the response to the previous comment, it is not appropriate to defer action on this product category.

Furniture Maintenance Products

234. Comment: The ARB should regulate both dusting sprays and furniture maintenance products as a single category because:

(a) The definition of "dusting spray" is so vague that it is not possible to determine with certainty which products are "dusting sprays" (and therefore exempt from regulation) and which products are "furniture maintenance products" (and therefore subject to regulation). (SCJS)

(b) Regulating furniture maintenance products and dusting sprays separately will give an unfair advantage to products positioned as "dusting sprays", since "dusting sprays" compete directly with "furniture maintenance products" in the marketplace. (SCJS)

Agency Response: (a) We believe that the definition of "dusting spray" adequately distinguishes this product category from other furniture maintenance products. Dusting sprays are defined as "products designed to assist in removing dust and other residuals from finished wood surfaces, including floors, and which after drying leave behind very little film or other residuals on such surfaces". This definition distinguishes dusting sprays from products designed primarily to leave a protective film or to moisturize or preserve wood. The definition also excludes products not designed for use on floors.

(b) The ARB does not believe that the standards specified for "furniture maintenance products" will result in a competitive advantage for dusting sprays. As discussed on pages 39 to 42 of the TSD, a large number of products already comply with the proposed standards for furniture maintenance products. This indicates that the standard is readily achievable, and therefore have to understand how a significant competitive advantage would be achieved by a limited category of products which are not subject to the standard. However, the ARB is currently investigating the possibility of regulating dusting sprays. If this investigation substantiates the commenter's claim, the ARB will take appropriate action to amend the regulation.

Glass Cleaners

235. Comment: The modified regulations specify VOC standards for the subcategory "All Other Forms" of glass cleaner. This subcategory should be relabeled as "Liquid/Pump Sprays" in order to clarify that the standards are applicable only to liquid and pump sprays, and that cloth wipes are not subject to any regulatory standard whatsoever. This modification is necessary because: (CSMA, L&F, DOW)

(a) Statements in the Board transcript indicate that the Board did not intend to specify any standard for cloth wipes. Chairwoman Sharpless

and Board Member Lagarias both referred to "aerosols" and "liquids and pumps" as the categories of glass cleaner that were subject to regulation. (L&F)

(b) The inclusion of a standard for cloth wipe cleaners is arbitrary and capricious because no evidence or data was presented as to the feasibility of applying any particular VOC limit to cloth wipe glass cleaners. Board testimony and ARB staff analysis was only directed to the glass cleaner cleaner categories of "aerosols" and "liquids and pumps". (DOW, L&F)

(c) The inclusion of a standard for cloth wipe cleaners violates the Administrative Procedure Act because at no point in the rulemaking process was the public given adequate notice that "All Other Forms" of glass cleaner (i.e., cloth wipes) would be regulated. (L&F)

Agency Response: (a) Cloth wipe glass cleaners are merely liquid glass cleaners impregnated into a cloth package. Chairwoman Sharpless and Board Member Lagarias made no statement which contradicts this position. In addition, it is absurd to cite the brief summary labels used by individual Board members as evidence that the Board intended to make the kind of complicated differentiations suggested by the commenter. When these remarks are considered in context, it is obvious that the Board's intent was to separate our the "aerosol" category from other types of glass cleaners. The modified regulations accurately reflect this intent.

(b) Regulating cloth wipe glass cleaners is not arbitrary and capricious. As explained in the response to the previous comment, ARB staff considers cloth wipes to be merely liquid glass cleaners impregnated into a cloth package. It is clear that the regulatory standard for glass cleaners is technologically and commercially feasible (see pages 45 to 47 of the TSD and the response to Comments #161). The ARB has no information to indicated that cloth wipe cleaners cannot meet this regulatory standard. However, the regulation is still technologically and commercially feasible even if cloth wipes cannot meet the standard and become unavailable to the consumer. Since over 80 percent of currently marketed glass cleaners already comply with he proposed standards, the basic market demand for glass cleaners will be satisfied whether or not cloth wipes are available (see response to Comments #29 and 30 for a general discussion of the concepts of "basic market demand" and "technological and commercial feasibility").

(c) The Administrative Procedure Act was not violated. As orginally proposed, the regulations specified a six percent VOC standard for "glass cleaners" [section 94509(a)], and defined "glass cleaner" as "...a specialty cleaning product designed primarily for cleaning surfaces made of glass...". [section 94508(34)]. Since cloth wipes are designed and marketed to clean glass, and it is clear that this product falls within the originally proposed definition of "glass cleaner". Cloth wipes were also specifically mentioned as a type of glass cleaner in the TSD (page 45), which was made available to the public. Therefore, there is absolutely no question that the public was given adequate notice that all forms of glass cleaner, including cloth wipes, were subject to regulation.

236. Comment: A typographical error was made in the Table of Standards (section 94509(a)). The 6% VOC standard was erroneously listed under the

"1/1/94" column, whereas it should have been listed under the "Future Effective" column in order to be consistent with statements made in the hearing transcript and the description contained in the 15-day notice. (SDA, PGC)

Agency Response: The regulations were modified to correct the typographical error identified by the commenter.

237. Comment: The proposed modification to the definition of glass cleaner (section 94508(34)) will not accomplish its intended purpose of exempting glass cleaners designed to clean smaller and more sensitive glass surfaces. This is because no products are designed solely for use on such surfaces. The regulations should be modified to exempt products designed primarily for use on such surfaces, and to specify that "...Such products must be non-abrasive and packaged in containers of no more that 1.5 ounces net weight." (PFIZ)

Agency Response: Under the language suggested by the commenter, a manufacturer could state on a product label that the product's "primary" use is to clean optical materials, but that the product can also be used as a general glass cleaner. This could result in a situation where many high-VOC glass cleaners might simply change their labels in an attempt to avoid compliance with the specified VOC standards. The regulation avoids this problem by limiting the excluded products to "products designed solely for the purpose of cleaning optical materials used in eyeglasses, photographic equipment, scientific equipment, and photocopying machines." While is is true that all such products can be used to clean other glass surfaces, there are nevertheless a number of specialty products that are designed and marketed solely for use in cleaning the specified optical materials. It is these products that the definition has been drafted to exclude. In addition, it is not appropriate to limit the exclusion to products packaged in containers of no more than 1.5 ounces net weight. The ARB believes that a number of products are sold in weights greater than 1.5 ounces, and we have no information to indicated that any particular size cut-off is necessary in the regulation.

Laundry Prewashes

238. Comment: In Resolution 90-60, the Board directed the Executive Office to gather additional data regarding laundry prewashes (all other forms) to determine if the standard requires modification. This statement indicates that the Board believes that adequate data (as required by Health and Safety Code section 41712) does not exist regarding this product category. The standard for this product category should therefore be removed from the Table of Standards, and consideration should be deferred to the next step of regulations. (RCI, CSMA, DOW)

Agency Response: The commenter has misinterpreted the intent of the Board. As explained at length in the response to Comment #232, he language cited by the commenter is not an indication that the regulatory standards are based on inadequate data. The ARB believes that the standards for laundry prewashes are based on adequate data and are technologically and commercially feasible (see pages 57 to 60 of the TSD). It is therefore not appropriate to defer action on this product category.

Antiperspirant Regulation

239. Comment: A typographical error seems to have occurred in section 94504(b)(2)(E). This subsection refers to 0.2 mm Hg, but the correct reference should be to 2.0 mm Hg in order to be consistent with the original Antiperspirant regulation. (CTFA)

Agency Response: The regulation was modified to correct the typographical error identified by the commenter.

240. Comment: Section 94504(b) should be revised to read as originally proposed by ARB staff to require the registration of products, "no later than three months after the effective date of this article" and to delete the date of March 1, 1991. This would allow companies sufficient time to collect and assure the accuracy of all information submitted. (CSMA)

Agency Response: As approved by OAL on January 28, 1991, section 94504(b) of the antiperspirant regulation provided that manufacturers must submit reports to the ARB on or before April 1, 1991. In an attempt to be consistent with section 94513 of the statewide consumer products regulation, it was proposed for this rulemaking that the April 1, 1991 date be changed to March 1, 1991. There is no longer any reason to make this change, however, because the present rulemaking was not submitted to OAL until after March 1, 1991. Since the proposed modification would be confusing and would have absolutely no legal effect, the modification has been eliminated and the original date of March 1, 1991 has been left unchanged. This allows more than ample time (approximately 18 months from the October, 1989, Board hearing) for the data to be reported to the ARB.

241. Comment: The test methods specified in Section 94506 will not always be useful for demonstrating compliance with the antiperspirant regulation (especially in determining MVOC and HVOC content). Manufactures should be able to develop and submit for verification by the Executive Officer methods appropriate for antiperspirant and deodorant VOC analysis. Therefore, the following language that was deleted from section 94506(b) should be reinstated:

> "The result of tests conducted by manufacturers or others to identify the volatile organic compound content of antiperspirants or deodorants shall be subject to verification by the Executive Officer." (CSMA)

Agency Response: The language identified by the commenter was deleted from section 94506 as part of a prior rulemaking action (see OAL File No. 90-0813-06; Regulation to Reduce Volatile Organic Compounds from Antiperspirants and Deodorants, Title 17, California Code of Regulations sections 94500-94506). Although the Board did not adopt the specific language suggested by the commenter, the Board did modify the regulations to include the commenter's suggestion that manufacturers be allowed to propose alternative test methods for Executive Officer approval. The language adopted by the Board has greater clarity than the suggested language, and has been included in both the statewide consumer products regulation [see Title 17, California Code of Regulations, section 94515(a)] and the antiperspirant regulation [Title 17, California Code of Regulations, section 94506(a)].

242. Comment: In Section 94504(b)(2)(F)of the antiperspirant regulation, "The total HVOC and MVOC content..." should be changed to "The total VOC content...". Since ARB has declined to consider the relative reactivity of VOC's, the terms HVOC and MVOC are misleading. HVOC and MVOC have nothing to do with reactivity and the designation is unnecessary. ARB's definition of VOC in Section 94508 (68) is sufficient for the proposed definition. (AERO)

Agency Response: The commenter has confused reactivity with volatility. The terms HVOC and MVOC stand for high volatility organic compounds and medium volatility organic compounds. These terms deal with the relative volatility of organic compounds and have nothing to do with reactivity. The reporting of HVOC and MVOC is necessary because section 94502(a) of the antiperspirant regulation uses these categories as a basis for the specified standards. It is therefore essential for the ARB to have this information in order to know which products meet the standards and which do not.

243. Comment: We propose the following language for Section 94504(b)(2)(E): "the total VOC (as defined in Section 94501(n)) content in percent by weight which: (a) has a vapor pressure of [0.2] 2.0 mm Hg or [less] more at 20 degrees Centigrade, or (b) consists of [more] less than 10 carbon atoms, if the vapor pressure is unknown:". The proposed changes would bring the reporting requirements into consistency with the exemptions as cited in Section 94503. (PGC)

Agency Response: In response to this comment, section 94504(b)(2)(E) was modified by changing "0.2 mm Hg" to "2.0 mm Hg". "0.2 mm Hg" is a typographical error that is obviously inconsistent with the vapor pressure of "2 mm Hg" specified in section 94503. It is not appropriate to make the other changes proposed by the commenter. These changes would be confusing because the language of section 94504(b)(2)(E) would then be inconsistent with the language of section 94503(c). Since section 94503(c) identifies the low vapor pressure compounds that are exempt from the requirements of the antiperspirant regulation, it is important to make the reporting requirements as consistent as possible with this section.

244. Comment: In Resolution 90-60, the Board stated that "...to provide consistency with the provisions of the proposed statewide regulation, staff has proposed modifications to the antiperspirant regulation." To achieve this consistency and to correct an apparent oversight, the one-year "sell-through" provisions of the statewide regulation should be included in the antiperspirant regulation. (CTFA, PGC)

Agency Response: This modification is not necessary because the Board did not intend to include a one-year sell-through period in the antiperspirant regulation. The sell through issue was discussed in the record for the antiperspirant rulemaking; and the Board concluded that the lead time provided by the regulation was adequate to allow manufacturers and retailers to clear existing stocks of antiperspirants and deodorants. A sell-through period is therefore not necessary for the antiperspirant regulation.

245. Comment: The definition of volatile organic (VOC) should be modified to exclude the one carbon compound ammonium carbamate. This

compound is a solid material which sublimes with dissociation to evolve carbon dioxide and ammonia. Ammonium carbamate as such does not exist in the gaseous state. The compound is an essential inert material in most metal phosphide fumigants which are used for control of insects in stored agricultural products. (DAI)

Agency Response: This change is not necessary. Since the regulation does not contain a regulatory limit for fumigants, the existing VOC definition has no present impact on these products. If a standard for fumigants is proposed in the future, ARB staff will review the available evidence and determine whether some type of exemption is appropriate for ammonium carbonate used in fumigant products.