

**State of California
AIR RESOURCES BOARD**

**INITIAL STATEMENT OF REASONS
FOR PROPOSED RULEMAKING**

Public Hearing to Consider

**PROPOSED AMENDMENTS TO THE
CALIFORNIA CONSUMER PRODUCTS REGULATION**

To be considered by the Air Resources Board on July 24, 1997 at

Air Resources Board
Board Hearing Room, Lower Level
2020 L Street
Sacramento, California

Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

This report has been prepared by the staff of the California Air Resources Board. Publication does not signify that the contents reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

**State of California
AIR RESOURCES BOARD**

**PROPOSED AMENDMENTS TO THE
CALIFORNIA CONSUMER PRODUCTS REGULATION**

Prepared by:

**Stationary Source Division
Air Resources Board**

Reviewed by:

**Barbara A. Fry, Manager, Measures Development Section
Genevieve A. Shiroma, Chief, Air Quality Measures Branch
Donald J. Ames, Assistant Chief, Stationary Source Division
Peter D. Venturini, Chief, Stationary Source Division**

June 1997

**State of California
AIR RESOURCES BOARD**

**Initial Statement of Reasons
for Proposed Amendments to the
California Consumer Products Regulation**

**Volume I
Introduction and Executive Summary**

TABLE OF CONTENTS

<u>Contents</u>	<u>Page</u>
Volume I:	
INTRODUCTION AND EXECUTIVE SUMMARY	
I. Introduction	1
A. History and Background	1
B. California's SIP and Consumer Products	2
C. Phase III Amendments	3
II. Executive Summary	4
A. Introduction	4
B. Summary of Proposed Amendments	4
C. Regulatory Development Process and Evaluation of Alternatives	6
D. Compliance with the Proposed Mid-term Measures	10
E. Economic Impacts	15
F. Environmental Impacts	18
G. Future Plans with Respect to Reactivity Considerations	20
III. Recommendation	22

I.

INTRODUCTION

This report presents the Air Resources Board (ARB/Board) staff's proposed "Phase III" amendments (Mid-term Measures) to the California regulation for reducing volatile organic compound (VOC) emissions from consumer products. The amendments are proposed to satisfy a commitment in the State Implementation Plan (SIP) to develop Mid-term Measures which will achieve an additional 25 percent reduction in overall VOC emissions from consumer products by 2005.

This report represents the Initial Statement of Reasons for Proposed Rulemaking as required by the California Administrative Procedure Act and is comprised of two volumes. Volume I, "Introduction and Executive Summary," provides a short overview of the ARB's consumer products program, the consumer products element of the SIP, and the proposed "Phase III" amendments. For simplicity, this summary is presented in question-and-answer format, including commonly asked questions about this regulatory effort. Volume II, the Technical Support Document, is a more detailed presentation of the technical basis for the proposed "Phase III" amendments.

A. HISTORY AND BACKGROUND

In 1988, the Legislature enacted the California Clean Air Act (CCAA or "the Act"), which declared that attainment of the California state ambient air quality standards is necessary to promote and 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.

The CCAA added section 41712 to the California Health and Safety Code (HSC), which requires the ARB to adopt regulations to achieve the maximum feasible reduction in VOCs emitted by consumer products. As part of the regulatory adoption process, the ARB must determine that adequate data exist for it to adopt the regulations. The ARB must also find that the regulations are necessary, technologically and commercially feasible, and do not eliminate a product form. In enacting section 41712, the Legislature gave the ARB clear new authority to control emissions from consumer products, an area that had previously been subject to very few air pollution control regulations.

To date, the Board has adopted the following four regulations to fulfill the requirements of the California Clean Air Act as it pertains to consumer products:

- Antiperspirant and Deodorant Regulation (1989)
- “Phase I” Consumer Products Regulation (1990) with “Phase II” amendments (1992)
- Alternative Control Plan (1994)
- Aerosol Coatings Regulation (1995)

The first regulation was adopted in November 1989, and required a reduction in VOC emissions from antiperspirants and deodorants (the “Antiperspirant and Deodorant Regulation”). The second regulation, adopted in October 1990, required a reduction in VOC emissions from 16 different categories of consumer products (the “Consumer Products Regulation”). This second regulatory action is commonly referred to as Phase I. In January 1992, the Board adopted amendments to the Phase I regulation by adding VOC limits for 10 more consumer product categories (the Phase II amendments). To provide greater flexibility to the regulated industry, the ARB, on September 22, 1994, adopted the Alternative Control Plan regulation. This regulation, provides manufacturers with an alternative means of complying with the regulations by allowing “emissions averaging” of products above and below the applicable VOC limits. Finally, in March 1995, the Board adopted the aerosol coatings regulation, which applies to 35 categories of aerosol paints and related coating products.

In this report, these four regulations are collectively referred to as the “consumer products regulations” unless otherwise noted.

B. CALIFORNIA’S SIP AND CONSUMER PRODUCTS

On November 15, 1994, the ARB adopted the State Implementation Plan (SIP) for ozone. The SIP serves as California's overall long-term plan for attainment of the federal ambient air quality standards. Together with significant reductions from stationary industrial facilities, mobile sources (e.g. cars, trains, boats), and other area sources (e.g. architectural and industrial maintenance coatings), the reductions in the consumer products element of the SIP are an essential part of California’s effort to attain the air quality standards for ozone. The VOC reductions from consumer products are also needed to help several local air pollution control districts meet rate-of-progress requirements in the federal Clean Air Act (CAA).

The consumer products component of the SIP is a multi-faceted program comprised of “near-term,” “mid-term,” and “long-term” control measures. The near-term SIP measures are our existing consumer products regulations. The Mid-term Measures consist of regulations to cover additional product categories not currently subject to the existing regulations. The long-term measures rely on new technologies with components of market incentives and consumer education.

In the SIP, the ARB has committed to an overall 85 percent reduction in consumer product emissions from 1990 levels, by the year 2010 (including the adopted regulations). The reduction is necessary for the South Coast Air Basin, among others, to attain the federal ozone standard and meet the rate-of-progress requirements under the CAA. Under the SIP, the various stages of consumer product control measures will contribute the following emission reductions:

Table 1 Consumer Products SIP Commitments	
SIP Measures	Emission Reduction
Near-term	30%
Mid-term	25%
Long-term	30%
All Measures	85%

The Mid-term Measures are necessary to fulfill the commitments in the consumer products element of the SIP, and to achieve the maximum feasible reduction in the VOC emissions from consumer products, as required by the Health and Safety Code. More specifically, the Mid-term Measures emission reductions are necessary for the Sacramento Metropolitan Area and Ventura County Air Pollution Control District to demonstrate ozone attainment by 2005, and the South Coast Air Quality Management District to demonstrate attainment by 2010. They are also necessary for other districts to show continuing rate-of-progress as required by the federal Clean Air Act.

C. PHASE III AMENDMENTS

The proposed “Phase III” amendments are the first step in achieving the Mid-term Measures SIP commitment. The proposed amendments would add 18 new categories of consumer products to the existing consumer products regulation. The effective dates for the proposed standards are from the year 2000 to 2005. The later effective dates are proposed for standards which present greater reformulation challenges to manufacturers. For some product categories, two sets of standards are proposed, a near term standard and a future effective standard. The future effective standards represent a reformulation challenge to the industry and it is our intent to closely monitor manufacturers’ progress and efforts to meet these limits. In addition to these amendments, over the next year we also plan to investigate the feasibility of setting standards for an additional 13 product categories. These include health benefit products for which we need to consult with the Department of Health Services and experts in the field of public health to ensure that reducing the VOC content will not compromise the health benefits of these products. We also are working with the industry to develop a voluntary “reactivity” (ozone forming potential) compliance option. We expect that by adding a reactivity component

to the consumer products regulation, industry will be provided with additional flexibility in achieving compliance with the consumer products regulations.

II.

EXECUTIVE SUMMARY

A. INTRODUCTION

In this executive summary, we provide a plain English discussion of the staff's proposed amendments to the consumer products regulation (the "Mid-term Measures") and explain the rationale for the proposed changes. The discussion in this chapter is intended to satisfy the requirements of Government Code section 11346.2(a)(1), which requires that a noncontrolling "plain English" summary of the regulation be made available to the public. A more detailed discussion of the proposed regulatory amendments may be found in the Technical Support Document.

B. SUMMARY OF PROPOSED AMENDMENTS

What product categories are covered under the Mid-term Measures?

The 18 product categories shown in Table 2 below are contained in the Mid-term Measures proposal. All or part of the 13 additional categories shown in Table 3 will be investigated to determine the feasibility of VOC reduction over the next year.

Automotive Rubbing or Polishing Compounds	Multipurpose Lubricant
Automotive Wax, Polish, Sealant, or Glaze (includes hard paste wax and instant detailers)	Nonselective Terrestrial Herbicide
Bug and Tar Remover	Paint Remover or Stripper
Carpet and Upholstery Cleaner	Penetrant
Floor Wax Stripper	Rubber and Vinyl Protectant
General Purpose Degreaser	Silicone-based Multipurpose Lubricant
Hair Shine	Spot Remover
Heavy Duty Hand Cleaner or Soap	Undercoating
Metal Polish/Cleanser	Wasp and Hornet Insecticide

Table 3 Additional Categories Being Investigated	
Antimicrobial Hand Cleaner or Soap	Liquid Laundry Detergent
Astringent/Toners (medicated)	Multipurpose Solvent
Astringent/Toners (nonmedicated)	Multipurpose “Dry” Lubricants
Disinfectant	Paint Brush Cleaner
Facial Cleaner or Soap	Paint Thinner
General Use Hand or Body Cleaner or Soap	Rubbing Alcohol
Liquid Hand Dishwashing Detergent	

What other amendments to the consumer products regulation are being proposed?

Product category definitions are proposed for each of the consumer product categories subject to the regulation. Ancillary definitions are also proposed to clarify which products are exempt from the regulation.

A labeling provision is proposed for floor wax strippers which would allow manufacturers to specify dilution ratios on their label that would exceed the proposed 3 percent VOC standard for the removal of heavy floor polish build up. Specifically, the provision allows product labels to specify dilution ratios resulting in a VOC content up to 12 percent for the removal of heavy floor finishes, and dilution ratios of up to 3 percent for light or medium floor polish build up. This provision addresses industry concerns that in some situations a more concentrated floor wax stripper is necessary to efficiently remove heavy floor polish build up.

Finally, reporting requirements are included in the proposed regulation which would: (1) track the the use of methylene chloride and perchloroethylene (both Toxic Air Contaminants identified by the ARB pursuant to Health and Safety Code section 39655) in the product categories proposed for regulation; and (2) track manufacturers’ progress toward achieving compliance with the future effective VOC standards in the regulation. The reporting requirement for products with future effective standards would only apply to the following four product categories: “heavy-duty hand cleaner or soap,” “multipurpose lubricants,” “paint remover or stripper,” and “penetrants.” A compliance report would be required three years prior to the effective date of the future effective standard which details manufacturers’ progress toward achieving the future effective standard.

Who would be affected by these proposed amendments?

The Mid-term Measures would apply to anyone who sells, supplies, offers for sale, or manufactures consumer products subject to the Mid-term Measures for use in California. The primary impact would be on manufacturers and marketers of consumer products, which will have to reformulate some of their products. There is also an impact on distributors and retailers, who must ensure that they are selling or supplying complying products. In addition, since some products will have to be reformulated, suppliers of chemicals, propellants, containers, valves, and other components may be impacted, depending on whether there is an increased or decreased demand for their products. Finally, consumers may have to pay more for some consumer products, or may have to make some adjustments to their use of the reformulated products.

Will the provisions in the existing consumer products regulation apply to the Mid-term Measures?

Yes, the existing provisions in the consumer products regulation (such as the low vapor pressure VOC exemption, innovative products provision, and variance provision) will apply to the Mid-term Measures categories.

Will the Alternative Control Plan (ACP) be available to the Mid-term Measures product categories?

Yes, as specified in the ACP regulation, manufacturers will be able to submit plans to “average” the emissions from any combination of consumer products subject to the VOC limits in the consumer products regulation (the Phase I, Phase II, and Mid-term Measures categories). For consistency with the existing ACP, manufacturers will not be allowed to include the aerosol coating products when averaging all other regulated consumer product categories.

C. REGULATORY DEVELOPMENT PROCESS AND EVALUATION OF ALTERNATIVES

How did ARB staff develop the Mid-term Measures Proposal?

The Mid-term Measures were developed in cooperation with the consumer products industry and other interested parties. Our efforts began with the formation of the Consumer Products Working Group (CPWG), which held its first meeting on April 11-12, 1995. Based on the comments at the meeting, two technical subgroups were formed, one for the Mid-term Measures efforts (“Mid-term Measures Subgroup”) and one for our reactivity/scientific activities (“Reactivity Subgroup”). During this process, we conducted seven public workshops, five meetings of the CPWG, two meetings of the Mid-term Measures Subgroup, and six meetings of the Reactivity Subgroup. These meetings are summarized in Table 4 below.

Table 4 Summary of Mid-term Measures Public Meetings		
Date	Meeting	Location
April 11-12, 1995	Consumer Products Working Group	Sacramento, CA
July 11, 1995	Reactivity Subgroup	Sacramento, CA
July 12, 1995	Mid-term Measures Subgroup	Sacramento, CA
October 17, 1995	Consumer Products Working Group	Sacramento, CA
October 18, 1995	Mid-term Measures Subgroup	Sacramento, CA
January 18, 1996	Mid-term Measures Workshop Reactivity Subgroup	Sacramento, CA
April 16, 1996	Consumer Products Working Group Mid-term Measures Workshop	Sacramento, C
June 19, 1996	Reactivity Subgroup	Sacramento, CA
October 29, 1996	Consumer Products Working Group Reactivity Subgroup	Sacramento, CA
October 30, 1996	Mid-term Measures Workshop	Sacramento, CA
February 4, 1997	Mid-term Measures Workshop Reactivity Subgroup	Sacramento, CA
March 12, 1997	Mid-term Measures Workshop	San Francisco, CA
April 15, 1997	Mid-term Measures Workshop	Sacramento, CA
May 20, 1997	Consumer Products Working Group	Sacramento, CA
May 21, 1997	Mid-term Measures Workshop	Sacramento, CA

In addition to these more formal meetings, we conducted 17 teleconferences, three videoconferences, and numerous individual meetings with interested stakeholders to gather the technical information necessary to develop the Mid-term Measures. To gather specific information on the sales and emissions from the categories selected for evaluation under the Mid-term Measures effort, the staff also conducted a comprehensive survey.

Who has been most active in the process?

Consumer product manufacturers and marketers, and their trade associations, have been the most active in the process. The trade associations include the following:

- Chemical Specialties Manufacturers Association (CSMA)

- Cosmetic Toiletry and Fragrance Association (CTFA)
- Automotive Chemical Manufacturers Council (ACMC)
- Automotive Parts and Accessories Association (APPA)
- Soap and Detergent Association (SDA)

In addition, representatives from the U.S. EPA, and local air pollution control districts have attended many of the workshops and conference calls. ARB staff maintains a mailing list of nearly 3,000 companies and interested parties, which received information throughout the development of the Mid-term Measures.

What information was gathered from the ARB's Mid-term Measures Survey?

The ARB's Mid-term Measures survey requested general information about the responding companies, and product specific formulation and sales information. The survey covered 58 categories of consumer products that were being considered for the Mid-term Measures. The survey was developed in cooperation with the Ad-Hoc Categories Committee of the Mid-term Measures Subgroup. This Committee approved the survey form, and the forms for providing nonconfidential data summaries to the industry.

Why didn't ARB staff use the information from the U.S. EPA's 1990 survey?

The U.S. EPA conducted an extensive survey of consumer and commercial products that collected 1990 sales and formulation information. We were also able to use the 1990 U.S. EPA survey data, along with the ARB's 1990 and 1991 surveys, to develop an estimate of the market coverage from our Mid-term Measures survey. However, after extensive review of the U.S. EPA data, it became apparent that we would not be able to use it to develop the proposed standards in the Mid-term Measures. The U.S. EPA 1990 data were too old to reflect current products and formulations, due to the high turnover rate for many consumer products. Also, the U.S. EPA data did not include zero VOC product formulations, data on non-VOC Toxic Air Contaminants, and did not speciate all VOCs. This information was necessary for our technical analysis of available product formulations, and to enable us to evaluate the reactivity of these consumer products.

How did ARB staff evaluate alternatives and choose the product categories proposed for regulation under the Mid-term Measures?

ARB staff began the selection process by reviewing the consumer product categories included in the U.S. EPA's 1990 consumer products survey. After review of these product categories, it was determined that many of the categories included in U.S. EPA's 1990 survey were already regulated under ARB's existing consumer products regulations or had low emission reduction potential.

To facilitate the review process, an Ad Hoc Categories Committee was formed with industry representatives from the Mid-term Measures Subgroup. This Committee helped us to identify and prioritize product categories for inclusion in the Mid-term Measures survey. After compiling the Mid-term Measures survey results, we found that 32 product categories have the greatest potential for emission reductions.

Following further investigation of the 32 product categories, we determined that 13 categories warrant further study to determine the feasibility of developing proposed VOC standards. These 13 categories can be broadly classified as: 1) health benefit products requiring consultation with the Department of Health Services and experts in the field of public health, as required by the Health and Safety Code; 2) soap products with VOC's that may go down-the-drain and biodegrade in the sewer system; 3) 100 percent solvent categories which require further technical study regarding potential reformulation options; and 4) multipurpose "dry" lubricants which also require further technical study. Finally, we dropped the selective terrestrial herbicide category from consideration due to information provided by industry that demonstrated that many of the compounds reported as VOC's in the Mid-term Measures survey actually form "salts" which do not evaporate to form ozone. Consequently, we are proposing VOC standards for the remaining 18 product categories.

How were the proposed VOC limits in the Mid-term Measures established?

The proposed VOC limits are the product of extensive interaction with the affected consumer products industry. Although the basis for each of the proposed standards was based on factors unique to each of the individual categories, the following general guiding principles were applied:

- technological and commercial feasibility - assuring that technologies will be available by the effective date for each proposed standard and that the basic consumer market demand can be met on that date.
- available reformulation technologies - assuring that viable reformulation options are available to manufacturers.
- emission reductions achieved by the proposed VOC limit - assuring that our proposal would achieve the maximum feasible reduction as required by State law.

- complying market share in the Mid-term Measures survey - assuring that survey data demonstrate the current availability of complying products in the market place.
- preservation of forms of products - assuring that each existing product form (e.g. liquid, semi-solid, solid, aerosol) is able to reformulate to meet the proposed VOC standard.
- minimize potential for increases in the use of Toxic Air Contaminants - assuring that the proposed standard can be met with formulations which do not rely on the increased use of Toxic Air Contaminants such as methylene chloride or perchloroethylene.
- evaluation of alternatives to the proposed standards - assuring that our proposed standards are cost-effective, and commercially and technologically feasible.

ARB staff initially proposed VOC limits at the February 4, 1997, workshop in Sacramento. Three additional workshops were held after the February 4, 1997, workshop. During and after each of the workshops, industry and the trade associations provided comments on the draft VOC limits and regulatory language. In response to these comments, many of the initial proposed standards were modified. Some were modified more than once. Also, some changes in product categorization were made in response to these comments. We expect to continue our discussion with industry representatives after the release of this report and prior to the Board hearing. If these discussions result in changes to the VOC limits proposed here, we will present these changes at the Board hearing.

In addition, industry provided technical presentations on the product categories proposed for regulation at the March 12, 1997, April 15, 1997, and May 21, 1997, workshops. These presentations were helpful to ARB staff in developing draft VOC standards.

D. COMPLIANCE WITH THE PROPOSED MID-TERM MEASURES

How will manufacturers comply with the Mid-term Measures?

Manufacturers with noncomplying products will need to reformulate their products to meet the applicable VOC limits. Manufacturers have the flexibility to choose any formulation that meets the applicable VOC limits, and the reformulation options vary with each product category (see Chapter VI of the Technical Support Document). In general, VOC solvents or propellants will need to be replaced with non-VOC ingredients. This may require switching to a water-based formulation, a solvent-based formulation using acetone or another VOC exempt solvent, a higher solids formulation, or a formulation with a non-VOC propellant. Manufacturers may also need to change the valve, container, or other components of the

consumer product depending on the individual formulation. ARB staff has not proposed VOC standards that can only be met with the use of Toxic Air Contaminants such as methylene chloride, or perchloroethylene.

Are there alternative options for achieving compliance with the Mid-term Measures?

Yes, we believe manufacturers can comply with the proposed amendments through the use of the Innovative Products Provision (IPP), or the Alternative Control Plan (ACP). The IPP allows manufacturers of “innovative products” to comply with the consumer products regulation if they submit an application which demonstrates through clear and convincing evidence that their product will result in less VOC emissions in use than a complying product that meets the applicable VOC standard. The innovative product may result in less emissions due to some characteristic of the product formulation, design, delivery system, or other factors. The IPP has proven to be an effective option with 11 manufacturers using this approach to comply with the existing VOC limits in the current consumer products regulations.

The ACP allows manufacturers to average the emissions from products above and below the applicable VOC standards (bubble), as long as the overall emissions are less than or equal to the emissions that would have occurred had all the products complied with the VOC standards. Manufacturers must submit an application which includes the VOC content of the products in the plan, a method of verifying the sales of each product in the plan, and other information necessary to track overall emissions. To date, one manufacturer has taken advantage of the ACP, and two other applications are being processed.

Are the VOC limits proposed in the Mid-term Measures technologically and commercially feasible?

As explained in detail in Chapters III and VI of the Technical Support Document, we believe that all the VOC standards proposed in the Mid-term Measures are technologically and commercially feasible. The Mid-term Measures standards were targeted towards the lower VOC content technologies within a product category. That is, for all of the categories, products meeting the proposed limits are being marketed. In doing this, consideration was given to preserve the various product forms within each category. In addition, we believe each of the proposed standards can be met without resorting to the use of Toxic Air Contaminants. A review of product labels for both complying and noncomplying products subject to the proposed standards revealed that both make similar claims.

What are the emission reduction benefits from the Mid-term Measures proposal?

Tables 5 and 6 present the proposed VOC limits for each category, the emission reductions and the number and market share of products that currently comply with the proposed limits. As shown in tables 5 and 6 below, our survey results show products are currently marketed that comply with both the first tier and second tier standards for all of the

product categories under consideration, except for the hard paste wax form of “automotive wax, polish, sealant, or glaze.” In this case, a complying product recently entered the marketplace after our survey was conducted.

The total emission reductions from both the initial and future-effective standards (as shown in Table 5 and 6) is over 15 TPD. This represents an overall emission reduction of about 50 percent from the categories proposed for the Mid-term Measures. The variation in complying market share reflects the fact that each standard is developed independently based on the available reformulation options.

Table 5 First Tier Standards					
Product Category (Effective Date)	Range of VOC Content	Proposed VOC Limit (wt%)	VOC Emission Reduction** * (lbs/day) and Percent Reduction	Number of Complying Products /Total Percent Complying	Complying Market Share (%)
Automotive Rubbing or Polishing Compound					
All Forms (2002)	0-55%	15%	660 32%	16/63 25%	18%
Automotive Wax, Polish, Sealant or Glaze					
All Other Forms (2005)	0-95%	15%	1,340 35%	42/146 29%	39%
Hard Paste Wax (2005)	60-80%	45%	480 36%	1*/17 6%	unknown (low)
Instant Detailers (2000)	0-10%	3%	80 10%	4/8 50%	47%
Bug and Tar Remover					
All Forms (2002)	0-100%	40%	640 39%	8/32 25%	43%
Carpet & Upholstery Cleaner					
Aerosol (2000)	4-18%	7%	80 16%	8/34 24%	44%
Dilutable Non-aerosol (2000)	0-13%	0.1%	700 60%	66 / 142 46%	45%
Ready-to-use Non-aerosol (2000)	0-11%	2.5%	50 31%	9 / 14 64%	71%
Floor Wax Stripper					
Non-aerosol (2002)	0-90%	3%	3,440 54%	55/108 51%	69%

Table 5 (continued) First Tier Standards					
Product Category (Effective Date)	Range of VOC Content	Proposed VOC Limit (wt%)	VOC Emission Reduction** * (lbs/day) and Percent Reduction	Number of Complying Products /Total Percent Complying	Complying Market Share (%)
General Purpose Degreaser					
Aerosol (2002)	10-100%	50%	540 46%	6/59 10%	5%
Non-aerosol (2000)	0-100%	10%	2,780 66%	140/193 73%	98%
Hair Shine					
All Forms (2005)	0-99%	55%	500 43%	5/24 63%	13%
Heavy Duty Hand Cleaner					
All Forms (2002)	0-50%	10%	3,340 56%	52/122 43%	58%
Metal Polish/Cleanser					
All Forms (2002)	5-100%	30%	280 42%	89 / 113 79%	90%
Multipurpose Lubricant					
All Forms** (2002)	0-100%	60%	2,320 20%	75/133 56%	11%
Non-selective Terrestrial Herbicide					
Non-aerosol (2002)	0-30%	3%	5,220 77%	33/42 79%	96%
Paint Remover or Stripper					
All Forms (2002)	0-100%	65%	100 2%	59/82 72%	96%
Penetrant					
All Forms (2002)	0-100%	60%	160 14%	44 / 100 44%	53%

Table 5 (continued) First Tier Standards					
Product Category (Effective Date)	Range of VOC Content	Proposed VOC Limit (wt%)	VOC Emission Reduction** * (lbs/day) and Percent Reduction	Number of Complying Products /Total Percent Complying	Complying Market Share (%)
Rubber and Vinyl Protectant					
Aerosol (2005)	0-95%	10%	460 31%	7 / 24 29%	16%
Non-aerosol (2000)	0-100%	3%	1,680 93%	40 / 75 59%	87%
Silicone-based Multipurpose Lubricant					
All Forms** (2005)	0-100%	60%	500 34%	29 / 92 32%	17%
Spot Remover					
Aerosol (2000)	0-98%	25%	100 65%	10 / 30 65%	78%
Non-aerosol (2000)	0-100%	8%	420 67%	49 / 75 65%	80%
Undercoating					
Aerosol (2002)	30-75%	40%	120 26%	9 / 32 28%	12%
Wasp and Hornet Insecticide					
All Forms (2005)	0-97%	40%	500 40%	5/29 17%	67%
Total emission reductions for the first tier standards and the total percent reduction			26,400 (13.2 tpd) 43%		

* A complying product entered the market after our survey was conducted.

** All forms except solids or semisolids (primarily greases).

*** VOC emission reductions are adjusted to reflect complete market coverage.

**Table 6
Second Tier Standards**

Product Category (Effective Date)	Proposed VOC Limit (Wt%)	VOC Emission Reduction (lbs/day)** and Total Percent Reduction (%)	Number of Complying Products /Total Percent Complying	Complying Market Share (%)
Heavy Duty Hand Cleaner (2005)	5%	4,540 76%	39/122 32%	12%
Multipurpose Lubricant (2005)	45%	4,700 40%	62/133 47%	9%
Paint Remover or Stripper (2005)	50%	420 10%	38/82 46%	38%
Penetrant (2005)	45%	300 27%	30/100 30%	37%
Total emission reductions for the second tier standards		4,200 (2.1 tpd)		
Total emission reductions for the first and second tier standards and the total percent reduction		30,600 (15.3 tpd) 50%		

* All forms except solids or semisolids (primarily greases).

** VOC emission reductions are adjusted to reflect complete market coverage.

E. ECONOMIC IMPACTS

What are the expected economic impacts of the proposed regulation on businesses?

In our economic impacts analysis, we evaluated the Phase III standards for potential impacts on profitability and other aspects of businesses subject to the standards (with particular attention to California businesses), the cost-effectiveness of the standards, and the estimated cost impacts to consumers. To conduct our analysis, we relied on a combination of publicly available financial databases (Dun and Bradstreet, *Ward's Business Directory of U.S. Manufacturing Industries*), the ARB Mid-Term Measures Survey, industry journals/literature such as the *Chemical Market Reporter*, discussions with industry representatives, and the cost analyses conducted for the existing ARB consumer products program. While these sources provided sufficient data to allow a comprehensive impacts analysis, we also developed a survey to request supplemental information from companies. However, the lack of industry response to the survey prevented us from using the affected industry's data in this analysis. Nonetheless, we used the best available data, including actual cost-estimates/expenditure data from companies subject to the Phase II hairspray standards gathered during a recent ARB technical assessment.

Based on our analysis, we expect most manufacturers to be able to absorb the added costs of the proposed regulation without an adverse impact on their profitability. We also found that the Phase III standards are cost-effective relative to similar ARB regulations or measures, and the impacts to consumers based on changes to raw materials cost are consistent with existing ARB regulations.

We estimated the change in “return on owner’s equity” (ROE) as an indicator of the standards’ potential impacts on business profitability. The cost to comply with the proposed regulation, through increased research and development, equipment purchase and other investment costs, is presumed to impact a business’ ROE and therefore its profitability. The cost to reformulate noncomplying products for a typical company was used to determine total annual reformulation costs. Our analysis indicates the estimated change in ROE can vary from essentially no change to slightly over a five percent change. The average change in ROE is about two percent, relative to the pre-regulatory ROE. This estimated change in ROE is well within the change in ROE estimated for ARB’s existing consumer products and motor vehicle programs.

Our ROE analysis for the Phase III standards may overestimate the impact on business because it assumes that all of the costs of the proposed standards will be absorbed by manufacturers. In reality, we expect at least some of the investment costs to comply with the proposed standards will be passed on to consumers. The analysis also does not quantify the extent of cost mitigation from “technology-transfer” between product lines and from third-party manufacturers (i.e., contract fillers) who fill essentially equivalent products for a number of competing businesses.

While we expect that most businesses will be able to absorb the costs of the proposed regulation without significant adverse impacts on their profitability, there is the possibility that some individual businesses will be adversely affected by this regulatory action. Therefore, it is possible that this regulation may have a significant adverse impact on some businesses that are not in a market position to invest monies to develop new low VOC products as well as other manufacturers, or to absorb the increased cost resulting from their compliance with the proposed regulation.

Based on our analysis, we do not expect the Mid-term Measures to have a significant impact on employment, or business creation, elimination, or expansion. We also do not expect the regulation to have a significant impact on the competitiveness of California businesses compared with those outside of California. This is because all companies that sell these products in California would have to meet the proposed requirements, whether located in California or outside of California.

The standards in the proposed regulation will primarily impact consumer product manufacturers and marketers (companies which contract out the manufacturing of their products). However, we recognize that other industries could also be impacted to a lesser amount which is difficult to quantify. These industries include distributors, retailers, and

“upstream” suppliers who supply containers, valves, solvents, propellants, and other chemicals used in consumer products.

Distributors and retailers could be impacted if some manufacturers decide to carry a dual inventory of products (one for California and one for the rest of the nation). However, nearly all manufacturers have indicated that dual-distribution systems are expensive to establish and maintain; these companies have stated they will not manufacture California and 49-state products. Another potential cost to distributors or retailers would be the implementation of procedures to ensure that noncomplying products are not sold past the three year “sell-through period.” However, based on retail sell-through data obtained during the development of ARB’s existing consumer product regulations, we believe the existing three year sell-through period should provide ample time to allow for the sale of noncomplying Phase III products.

Upstream suppliers could be impacted because manufacturers will be purchasing some different solvents, propellants, and other materials for their reformulated products. They may also purchase different containers, valves, or other components for their reformulated products. However, we do not expect these changes to result in a major impact on the affected industries because chemical companies generally supply many different industries, and because many of the upstream suppliers also provide the alternative products which will be used in the reformulated products. In fact, we expect some upstream suppliers will benefit since the Phase III standards are likely to create new or increased demand for materials to be used in compliant formulations.

Will the proposed Phase III standards be cost-effective?

Cost-effectiveness is one measure of a regulation’s efficiency in reducing a given amount of pollutant (often reported in “dollars (to be) spent per pound of VOC reduced”). The determination of cost-effectiveness is well-established and often used to compare a proposed regulation’s cost-efficiency with those of other regulations. We estimated a cost-effectiveness range for each of the 18 Phase III categories (25 subcategories with a total of 29 standards). Our analyses considered separately the impacts on the cost-effectiveness from non-recurring, investment costs (as an annualized cost) and the impacts from recurring costs (primarily changes in raw material ingredients). To conduct our analyses, we relied on specific formulation data from the ARB Mid-Term Measures Survey, industry journals/literature such as the *Chemical Market Reporter* for ingredient unit prices, discussions with industry representatives, and the cost analyses conducted for the existing ARB consumer products program.

Based on our analyses, we estimate the cost-effectiveness of the individual Phase III standards ranges from essentially no cost to about \$5.60 per pound of VOC reduced. For the categories with two-tier standards, we estimate the cumulative cost-effectiveness for both standards ranges from about \$0.90 to about \$6.30 per pound of VOC reduced. We estimate the average cost-effectiveness weighted by emission reductions across all Phase III standards

to be about \$0.70 per pound of VOC reduced. These estimated cost-effectiveness values are consistent with existing ARB regulations and control measures.

Will consumers have to pay more for consumer products subject to the Mid-term Measures?

Based on our analyses for the Phase III standards and the existing consumer product regulations, we believe that the raw materials cost (i.e., the cost of product ingredients) has the most significant impact on changes to product prices whereas the non-recurring cost has a minor impact on product prices. However, our estimates of the potential increase in product prices include the estimated increases in raw materials and non-recurring (fixed) costs. Using detailed product composition data for representative compliant and noncompliant formulations, we estimated the raw materials cost for pre-regulatory and compliant products for each of the proposed Phase III standards. We also estimated the non-recurring costs and annualized them over a ten year period. Our analysis suggests that, depending on the reformulation routes chosen, some categories may experience little or no impacts to raw materials cost, while other categories will experience a raw materials cost increase. As discussed in more detail in Chapter VIII of the Technical Support Document, we estimate the raw materials and non-recurring cost changes under the Phase III standards range from essentially no cost to an increase of about \$0.60 per unit. The sales-weighted average increase in cost ranges from \$0.03 to \$0.07 per unit. This equates to an estimated increase in retail prices of less than one percent. To the extent manufacturers pass these costs along to the consumer, the actual retail price changes may be higher or lower than indicated by this analysis. The Technical Support Document and Appendices show the detailed analyses resulting in our estimated range in unit cost increases for each proposed standard.

F. ENVIRONMENTAL IMPACTS

What are the expected environmental benefits of the Mid-term Measures?

The primary environmental benefit of the Mid-term Measures will be a reduction in the formation of tropospheric (ground level) ozone. In the presence of sunlight, the VOCs from consumer products and other sources react with oxides of nitrogen (NO_x) to form ozone. Therefore, the 15 ton per day reduction in VOC emissions from the first phase of the Mid-term Measures will result in a positive impact on air quality and public health. In addition, VOCs have also been found to be a source of PM_{10} (minute particulate matter of 10 microns or less equivalent aerodynamic diameter), either through condensation of the VOCs or complex reactions of VOCs with other compounds in the atmosphere. The exact reductions in ozone and PM_{10} cannot be accurately predicted due to the wide variety of factors that impact the formation of ozone and PM_{10} . These factors include atmospheric conditions, the ratio of VOCs to NO_x in the atmosphere, and the reactivity (ozone formation potential) of the individual VOCs emitted.

How would the Mid-term Measures proposal reduce the risk to public health?

It has long been known that exposure to ground level ozone and PM₁₀ have adverse impacts on public health. Research has shown that, when inhaled, ozone and PM₁₀ can cause respiratory problems, aggravate asthma, and impair the immune system.

In light of this, we conducted a health risk assessment which shows that, by achieving the maximum feasible VOC emission reduction, this regulation would reduce public health risks by a similar magnitude as other regulations adopted by the ARB and other environmental agencies. For example, this proposed regulation would achieve a 50 percent VOC emission reduction from 18 consumer product categories. This compares favorably with the Phase II consumer product regulation that achieves a 35 percent VOC emission reduction and the proposed national consumer product regulation that would achieve a 20 percent VOC emission reduction. To what extent this regulation would reduce ozone and PM₁₀ concentrations is difficult to quantify and contingent on many factors. However, numerous scientific studies have shown that by reducing VOC emissions ozone and PM₁₀ concentrations are reduced. Therefore, by reducing ozone and PM₁₀ concentrations, this regulation would reduce the health risks posed by exposure to these pollutants.

Are there any potential negative environmental impacts?

Based on our analysis, as detailed in Chapter VII of the Technical Support Document, we do not expect any adverse environmental impacts to result from the Mid-term Measures.

We examined the potential effect of the proposed regulation on global warming, stratospheric ozone depletion, the use of Toxic Air Contaminants, and the impacts on water quality and solid waste disposal.

Are there any potential impacts on our State Implementation Plan (SIP) Commitments?

As explained in Chapter VII of the Technical Support Document, we are meeting the SIP performance standard of achieving a 50 percent reduction for these measures as specified in the SIP. However, because of a disparity in emissions reported in the Mid-term Measures survey and those estimated in the 1990 baseline inventory, the proposed amendments will not achieve the SIP level for emission reductions. Part of this disparity will be addressed when the entire consumer products inventory is updated this fall to include our 1995 Mid-term Measures survey results. Having met the prescribed SIP performance standard, these amendments will not result in a SIP emission shortfall, but rather, a SIP problem which must be addressed in an update to the SIP. Because these proposed amendments will achieve the SIP performance standard for VOC reductions, the Mid-term Measures SIP commitment is being fulfilled.

Based on the survey done for the Mid-term Measures and our experience over the last year in working on consumer products in general, we believe a complete update to the

consumer products inventory is needed. We intend, over the next two years, to work with the consumer products industry to conduct a comprehensive new survey of consumer product usage and emissions in California. We believe this effort is necessary to have as accurate and up-to-date consumer product inventory as possible to use as a basis for addressing our long-term consumer product SIP commitment. The up-to-date consumer product inventory will serve as the basis for amending the official SIP inventory.

What about the potential for an increase in the use of methylene chloride or perchloroethylene?

While we designed the proposed VOC limits to allow reformulating without increased use of toxic substances, we are proposing an additional annual reporting requirement in the Mid-term Measures to determine manufacturers' progress in meeting the proposed standards without the use of these Toxic Air Contaminants. Should the data indicate that the proposed standards will result in a significant increased use in either of these compounds, the proposed standards will be reconsidered. However, we believe that manufacturers will likely not reformulate using these compounds because: (1) other reformulation options are available for all of the products covered by the Mid-term Measures, (2) additional labeling is required by Proposition 65 (California's Safe Drinking Water and Toxic Enforcement Act of 1986), (3) the new OSHA standard for methylene chloride significantly reduces the allowable exposure to methylene chloride in the workplace, and (4) many companies have policies against the use or an increased use of these substances in their products.

G. FUTURE PLANS WITH RESPECT TO REACTIVITY CONSIDERATIONS

How will the "reactivity" of individual VOC's be considered in future consumer products rules?

Every VOC reacts differently under ambient conditions to form ozone; this tendency is called the VOCs "reactivity". Individual VOCs vary both in their rate of ozone formation and in the quantity of ozone formed. A relative reactivity scale was recently developed to rank VOCs based on their tendency to form ozone. Each VOC in this scale is assigned an "ozone formation potential" value based on smog chamber studies or by comparison with similar VOCs. Such a relative reactivity scale serves as the basis for the ARB's existing Low Emissions Vehicle (LEV) program. In the SIP we committed to evaluate the feasibility of incorporating a reactivity scheme into the consumer products program.

Traditional mass-based VOC standards have treated all VOCs equally, with no consideration for the reactivity of individual compounds (other than considering compounds as either reactive or negligibly-reactive). However, based on the successful use of the reactivity scale in the LEV program, ARB staff is considering several options for incorporation of reactivity elements into consumer product regulations currently under development and those already in effect. All reactivity-based strategies under consideration have the goal of reducing the ozone formation potential of regulated products. Since the existing mass-based approaches indirectly reduce ozone formation by reducing the mass of

VOCs emitted, a properly designed reactivity program should at least be equivalent in ozone reductions relative to the existing programs.

Reactivity-based standards are currently being considered for the Mid-term Measures consumer product standards; future efforts will focus on applying reactivity principles to the existing antiperspirant/deodorant and Phase I-II consumer product categories. For most categories, we are considering developing reactivity-based standards that are optional to the mass-based standards. That is, regulated businesses could either comply with the mass-based standard or comply with the reactivity standard. However, for some consumer product categories, primarily those comprised of 100 percent VOCs (e.g. paint thinners), a mass-based program may not be feasible; in these cases, mandatory reactivity standards may be the only feasible way to reduce the ozone formation from these products.

To oversee the development of reactivity-based standards, the Reactivity Subgroup of the Consumer Products Working Group was formed. This group is comprised of ARB staff, interested members of the consumer products industry, and other interested parties. In addition, Chairman John D. Dunlap, III, established the Reactivity Scientific Advisory Committee (RSAC) in April 1997. This committee is comprised of top researchers in the field of atmospheric photochemistry. The Reactivity Subgroup will consult with the RSAC to ensure that the consumer products reactivity program is scientifically sound and directionally correct.

III.

RECOMMENDATION

We recommend that the Board approve the proposed amendments to the consumer products regulation.