

**PROPOSED REGULATION TO REDUCE
VOLATILE ORGANIC COMPOUND EMISSIONS
FROM
CONSUMER PRODUCTS**

STAFF REPORT

**STATE OF CALIFORNIA
AIR RESOURCES BOARD
STATIONARY SOURCE DIVISION
AUGUST 1990**



State of California
AIR RESOURCES BOARD

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FROM
CONSUMER PRODUCTS

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State of California
AIR RESOURCES BOARD

Staff Report: Initial Statement
of Reasons for Proposed Rulemaking

Public Hearing to Consider
A PROPOSED REGULATION TO REDUCE
VOLATILE ORGANIC COMPOUND EMISSIONS FROM
CONSUMER PRODUCTS

To be considered by the Air Resources Board on October 11-12, 1990 at

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Air Resources Board
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I.

INTRODUCTION AND SUMMARY

A. OVERVIEW

In 1988, the California Clean Air Act (CCAA; Stats. 1988, ch. 1568) was adopted by the California State Legislature to address the State's serious air pollution problems and the inability of many areas in California to attain the State and Federal ambient air quality standards. The CCAA requires the air pollution control districts to develop control measures to achieve a five percent annual emission reduction of volatile organic compounds (VOC) in those districts that are non-attainment for the State air quality standard for ozone. In addition, the CCAA required the Air Resources Board ("ARB" or "Board") to adopt regulations on or before January 1, 1992, to achieve the maximum feasible reduction in VOC emissions from consumer products. It was further stipulated in the CCAA, that any consumer product regulation adopted by the Board must be technologically and commercially feasible, and necessary.

The purpose of this report is to present a summary and analysis of staff's proposed regulation prepared, in part, to meet the CCAA requirement to reduce VOC emissions from consumer products used in California. The regulation being proposed is a comprehensive statewide regulation and is the third regulation for consumer products to be considered by the Board. The first regulation considered and approved by the Board was a regulation to limit the VOC content of deodorants and antiperspirants. That regulation was approved by the Board in November 1989. The second regulation approved by the Board was a regulation establishing VOC limits on six consumer products that are sold in the Bay Area Air Quality Management District (BAAQMD). The BAAQMD regulation was approved by the Board in June 1990 and established VOC limits for air fresheners, automotive windshield washer fluid, engine degreasers, glass cleaners, hairsprays, and oven cleaners. This regulation was adopted pursuant to a court order in the cases of Citizens for A Better Environment v. George Deukmejian and Sierra Club v. Metropolitan Transportation Commission, et. al.

Staff intends to return to the Board again in the fall of 1991 with another regulation for consumer products. Staff envisions that the 1991 proposal will focus on consumer products not addressed in this regulation and on further future emission reductions for consumer products addressed in this proposal. Finally, the 1991 regulation may also include a proposal for an alternative compliance plan which would provide a market based compliance alternative for consumer product manufacturers.

B. REGULATION SUMMARY

1. What are the goals for the proposed consumer product regulation?

In developing the comprehensive statewide consumer product regulation, staff had three principle goals in mind. They were to:

- (1) meet the ARB's responsibilities as required by the CCAA to obtain the maximum feasible VOC emission reductions from consumer products that are technologically and commercially feasible;
- (2) minimize the impact on the consumer products market and on the product choices available to California consumers; and,
- (3) propose statewide VOC standards that will supercede the standards adopted by the Board in June for the BAAQMD which will meet or exceed the court-ordered emissions reduction requirement for the BAAQMD.

To meet these goals, we are proposing a regulation that establishes VOC limits on selected consumer products that are both technologically and commercially feasible. The standards being proposed should not result in the elimination of any product category. In fact, there are complying products currently available in each product category proposed for regulation ensuring that the basic market demand for these products will be satisfied and the impact on the consumer products market and the product choices available to the consumer will be minimized. The proposed regulation will also achieve at least a 3 ton per day VOC emission reduction by February 1, 1993 in the BAAQMD which, when combined with the BAAQMD's regulation for aerosol paints, will comply with the court ordered 4 tons per day emissions reduction.

To ensure that emission reductions continue to be achieved, future effective standards are being proposed for some consumer product categories that are technology-forcing. For those products that have future effective standards, staff will work closely with industry to monitor the progress in developing the new technologies to allow for lower VOC products. If necessary, in those cases where the technology does not become available despite diligent industry efforts, we would be prepared to propose to the Board necessary changes to the emission limits, compliance dates, or both. We also intend to periodically report to the Board on industry's progress in complying with these limits.

For products that do not have future effective standards in this proposal, staff will be evaluating the potential for additional reductions in the future. If additional data indicates that stricter standards are technologically and commercially feasible, staff will propose such standards in the future.

2. What criteria did staff use in selecting products for control?

The ARB's 1983 Emission Inventory was used to initially identify and prioritize product categories for regulation. In setting the priorities staff considered the magnitude of emissions, information available in the literature, and the potential for emission reductions. Twenty one products were initially proposed for regulation at a February 28, 1990 workshop. Based on information obtained from industry through individual meetings, additional workshops, and an ARB VOC survey of consumer products used in California, staff modified the original proposal and removed five products for which additional information and time are needed to propose emission limits.

3. What is contained in the proposed regulation?

The proposed regulation (Appendix), if adopted, will establish VOC content limits for sixteen consumer products. The products proposed for regulation are: air fresheners, automotive windshield washer fluids, bathroom and tile cleaners, engine degreasers, floor polishes, furniture maintenance products, general purpose cleaners, glass cleaners, hairsprays, hair mousses, hair styling gels, aerosol insect repellents, laundry prewash, oven cleaners, nail polish removers, and shaving creams. In addition to setting VOC content limits the proposed regulation contains other provisions.

Unique to this regulation is a market-based Innovative Product Provision. During the development of the regulation staff became aware of products that are being developed that may not be able to meet the proposed VOC content limits, but when used, could result in less VOC emissions than a compliant product. To allow for these products to be sold in California and to provide some flexibility to the industry, the proposed regulation contains an innovative product provision. This provision provides an alternative means of compliance with the regulations. Manufacturers who desire to market an innovative product in California must provide clear and convincing evidence to the Executive Officer and obtain approval from the Executive Officer prior to marketing the product. The manufacturers must demonstrate that the use of the innovative product will result in less VOC emissions than will a similar product that complies with the standard. We are also proposing to extend the innovative product provision to antiperspirants and deodorants which were regulated by the Board in November 1989.

In giving approval for an innovative product, the Executive Officer will ensure that conditions are established for the product that are enforceable and will result in emissions reductions comparable to what would be achieved if the product had been reformulated to meet the volatile

organic compound content limits. This will involve establishing VOC limits for each product, and, if necessary, test methods will be established.

The proposed regulation would prohibit the use of ozone depleting compounds in new formulations of the 16 products, and sets criteria for the amount of ozone depleting compounds that can be present as impurities. The proposed regulation would also establish a product registration program that will not only allow staff to track the future effectiveness of the proposed regulation, but will provide emission information needed by staff to develop proposed standards for additional products. Finally, the proposed regulation would provide a variance provision under which any person who cannot comply with the requirements of the proposed regulation because of reasons beyond the person's reasonable control may apply to the Executive Officer for a variance. Upon making certain findings, the provision would allow the Executive Officer to issue a variance allowing the person additional time to comply with the regulation.

4. What are the impacts of the proposed regulation?

For 6 of the products the standards are effective January 1, 1993 and for the remaining 10 products, January 1, 1994. As shown in Table 1, the emission reductions from the proposed regulation are approximately 31 tons per day by January 1, 1994 with an additional 14 tons per day by 1998. This total reduction of 45 tons per day represents approximately a 45 percent reduction of the emissions from the products being proposed for control.

Table 1
Summary of Emission Reductions from
the Proposed Regulation

<u>Year</u>	<u>Emission Reductions tons/day</u>
1993	26
1994	5
1996	2
1998	12
	<hr/>
	45 tons/day

The cost effectiveness ratios for the proposed regulation range from a net savings to \$1.70 per pound of VOC reduced. The cost effectiveness ratios were calculated assuming that manufacturers would reformulate a product to a similar complying product form with no additional capital or raw material costs associated with the reformulation. The assumption was also made that manufacturers would market the reformulated product nationally. This range reflects our best estimate based on the data available to allow evaluation of the cost to all manufacturers and the uncertainty in the cost to reformulate from the wide variety of products

covered under the regulation. Due to the complexity of the market it was not possible to conduct individual analysis for each consumer product. The total annual cost to the entire consumer product industry is estimated to range from 11 to 360 million dollars. The estimated annual costs associated with reformulating a single product formulation to meet this proposal range from \$16,000 to \$500,000 per product. Allocating this annual cost to the products that must be reformulated to meet the standards in this proposal would result in an increase of approximately 1 to 23 cents per unit. No adverse environmental impacts from the implementation of the proposed regulation have been identified.

5. How did staff develop this report and proposed regulation?

The CCAA requires the Board to adopt regulations only if adequate data exists. To obtain the necessary information, staff solicited cost, product formulation, sales data and other relevant information from manufacturers. This request for information was accomplished with the Consumer Products VOC Survey. With the survey, ARB staff requested product information including the following data on a per-brand name basis: (1) the product form (e.g., aerosol spray) and function (e.g., air freshener), (2) the annual California sales, and (3) the percentage VOC content by weight as defined in the regulation. A summary of the survey can be found in the Technical Support Document. Using the data from the survey, ARB staff were able to estimate the VOC emissions from each product category as well as identify products with low VOC emissions. In addition, staff were able to determine the market and emissions shares for the various product forms available and the percentage of the market that currently complies with the standards.

Staff also reviewed a variety of literature material, conducted retail outlet shelf surveys and conducted a survey of manufacturers to obtain data on the VOC content of products being proposed for regulation. Staff also consulted with state and federal agencies. It is important to note that, because this is the first time these products will be regulated to limit the VOC content, it was necessary to rely on industry supplied information. Five public workshops were conducted from September 1989 through July 1990 to discuss the regulation and solicit information, and one additional consultation meeting held to discuss the innovative product provision. In addition, over 50 individual meetings with industry representatives and numerous phone conversations were held to solicit comments and information. The data collected by staff from the VOC survey and industry meetings provided adequate data on which to propose a regulation.

This report is accompanied by a Technical Support Document (TSD) also prepared by ARB staff. The TSD contains detailed discussions of the information presented here, and is incorporated by reference as part of this report.

6. How does this regulation comply with the Consumer Product Control Plan?

In the Consumer Product Control Plan presented to the Board in July of 1989 a goal of a 50% reduction by the year 2000 in emissions from consumer products was set and staff proposed to bring regulations to the Board at 6

month intervals for the four major consumer product categories (personal care products, household products, automotive/industrial products and pesticide products). The staff also indicated that it would evaluate the feasibility of adopting a generic aerosol regulation.

As new information became available, staff concluded that it would be more effective in terms of emission reductions and resources to develop a comprehensive regulation that would address products in each of the major categories. It also became clear that a generic aerosol regulation was not practicable. As a result, the proposed schedule of regulatory development contained in the plan was modified. With regard to meeting our overall goal, this proposal of 45 tons per day reduction plus an additional 4 tons per day from the antiperspirant and deodorant regulation achieves an approximate 50% reduction in the VOC emissions from the 16 products being proposed for regulation and deodorants and antiperspirants. This brings us about halfway to our overall 50 percent reduction target for consumer products.

C. RECOMMENDATION

The ARB staff recommends that the Board adopt the proposed consumer product regulation and repeal the Bay Area Consumer Product regulation adopted in June 1990. Staff also recommends that the antiperspirant and deodorant regulation adopted by the Board in November 1989, be amended to include the innovative product provision contained in the proposed statewide regulation, and to include a revised variance procedure that is consistent with the statewide variance procedure. Further, staff intends to periodically report back to the Board on the implementation status of the regulation. With respect to the technology-forcing limits, we intend to closely monitor industry efforts at meeting these limits and will periodically report to the Board on industry's progress. If necessary, we will propose necessary changes to the future effective standards or dates.

II.

NEED FOR EMISSION REDUCTIONS

A. AIR QUALITY

Volatile organic compounds are precursors to both ozone and PM-10. Ozone is the most severe and prevalent air pollution problem in California. Ozone is formed through complex reactions of nitrogen oxides and volatile organic compounds in sunlight. Ozone is a strong respiratory irritant and impairs the normal functioning of the lung. Ozone also affects vegetation throughout most of California including reduced yield and quality in agricultural crops and disfiguration or unsatisfactory growth in ornamental vegetation. [1]

Inhalation of particles less than 10 microns in diameter (PM-10) can interfere with the respiratory system by affecting the exchange of gases or circulation. The elderly, persons suffering from lung or cardiovascular disease, infants and children, and asthma sufferers have been identified as being at greater risk from exposure to particulate matter. PM-10 is formed via a complex reaction involving a gas-to-particle conversion process.

Over 90 percent of California's population lives in areas non-attainment for both the state ozone and PM-10 standard. Figure 1 is a map showing the attainment status of California's air basins and counties with regard to the ambient air quality standards for ozone. The lined and cross-hatched areas represent the 32 counties that are designated non-attainment for the state ozone standard which is 0.09 ppm. Figure 2 is a map showing the attainment status for California air basins and counties with regard to the state ambient air quality standard for PM-10. As shown in the map, 13 air basins or portions thereof, covering 50 counties have been designated non-attainment for PM-10.

B. EMISSIONS

For the purposes of this regulation, the term volatile organic compound (VOC) refers to organic compounds that can contribute to pollutant

Figure 1

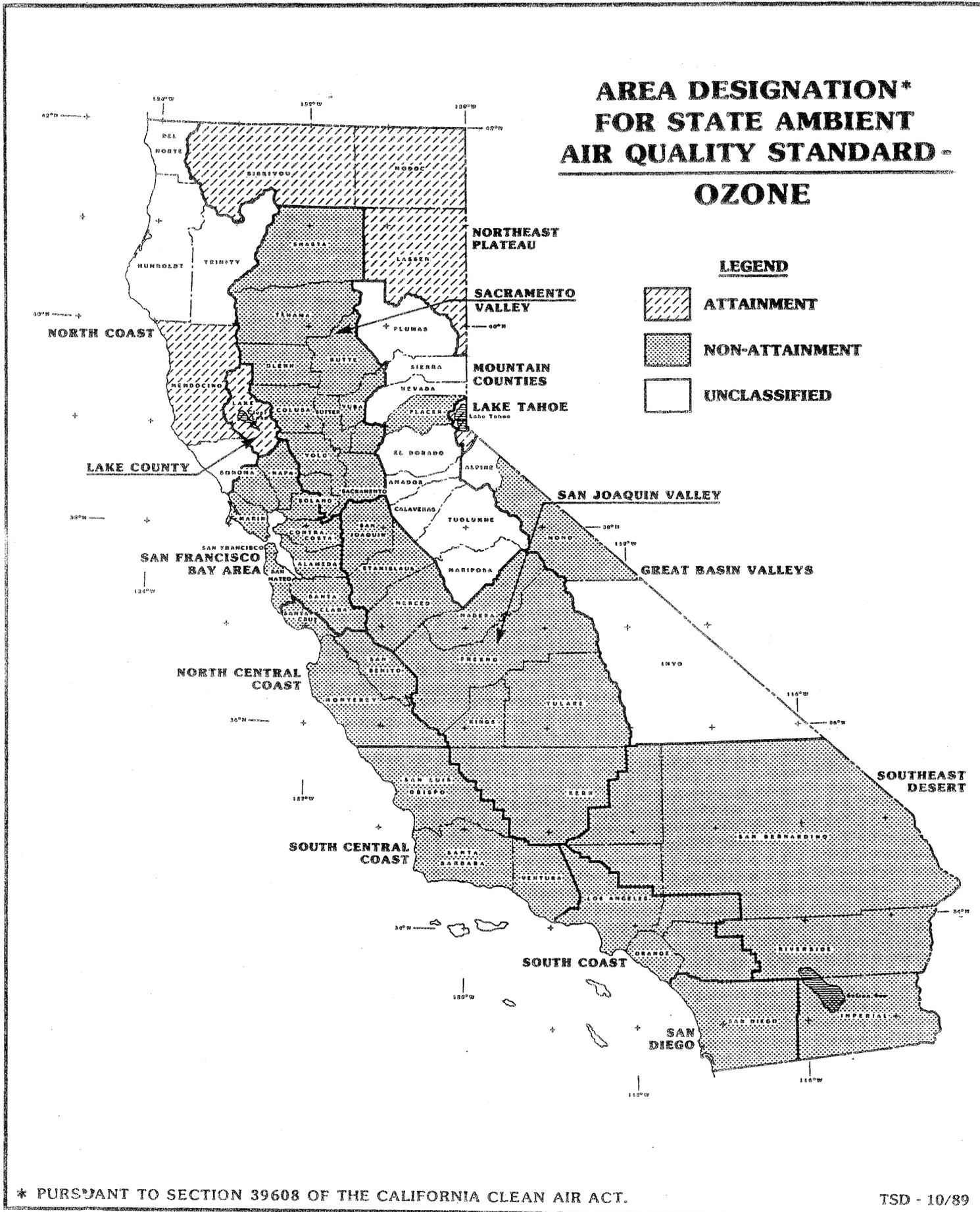


Figure 2

AREA DESIGNATION* FOR STATE AMBIENT AIR QUALITY STANDARD - SUSPENDED PARTICULATE MATTER (PM10)



* PURSUANT TO SECTION 39608 OF THE CALIFORNIA CLEAN AIR ACT.

formation in the lower troposphere. In this report, a VOC is a compound containing at least one atom of carbon, except methane, carbon dioxide, and certain other organic compounds determined by the Environmental Protection Agency (EPA) and the ARB to be non-photochemically reactive (primarily halogenated hydrocarbons).

While all non-exempt VOCs are potential contributors to air pollution, the staff is also aware that some VOCs used in consumer products have very low vapor pressures and due to product formulation characteristics and product use do not contribute to as great an extent as the more volatile VOCs. Based on staff's evaluation of the consumer products being proposed for regulation, only those compounds that exert a vapor pressure greater than 0.1 mm Hg when measured at 20 degrees Centigrade will be counted toward the emission estimates.

Totaled, the emissions from all consumer products (excluding aerosol paints) are estimated to be about 200 tons per day in 1987 [2] and account for approximately 9 percent of all the non-vehicular VOC emissions in California. This is a significant source of VOC emissions and if not regulated the percentage contribution will increase as California's population continues to grow.

The estimated emissions of VOCs from the 16 consumer products being proposed for regulation were over 100 tons per day statewide in 1989. The emissions from these 16 products are pictorially presented in Figure 3 and summarized in Table 2. Because the total tonnage is approximately 100 T/D, the actual tonnages for each category approximates closely, the percentage contribution of each category to the total. The emissions from these products account for approximately 50% of the consumer product emissions. Hairspray is the largest category being considered for regulation at 46 T/D in 1989, followed by windshield washer fluid at 24 T/D. These emissions estimates were calculated based on the responses to the VOC consumer products survey conducted by ARB staff in the spring of 1990 to determine VOC emissions for these and other products.

FIGURE 3

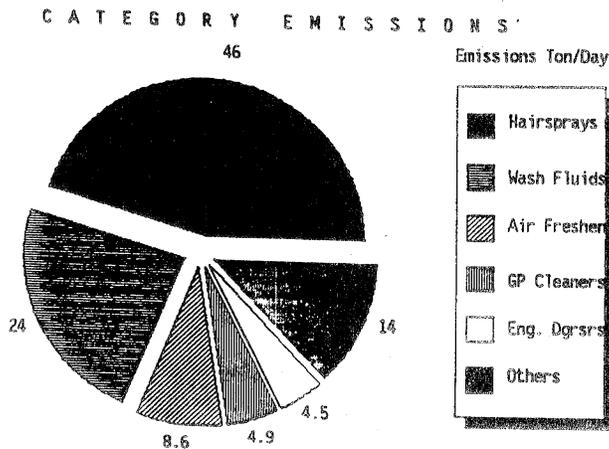


Table 2

VOC Emissions by Product Category
(1989)

<u>Product Category</u>	<u>VOC Emissions lbs/Day</u>
Air Fresheners (including dual-use disinfectants)	17,300
Automotive Windshield Washer Fluid	48,000
Bathroom and Tile Cleaner	900
Engine Degreaser	9,000
Floor Polish	5,200
Furniture Maintenance	5,600
General Purpose Cleaner	9,800
Glass Cleaner	4,600
Hair Spray	92,000
Hair Styling Gels	820
Hair Mousse	1,160
Insect Repellent (aerosols)	880
Laundry Prewash	4,000
Oven Cleaner	2,000
Nail Polish Remover	2,200
Shaving Cream	520
	<hr/>
	Total: ~ 204,000 lbs/Day (102 Tons/Day)

Source: ARB 1990 Consumer Product Survey

C. CALIFORNIA CLEAN AIR ACT REQUIREMENTS

The California Clean Air Act (CCAA) of 1988 requires, in part, (Health and Safety Code Section 41712) that on or before January 1, 1992, the Air Resources Board adopt regulations to achieve the maximum feasible reduction of VOC emissions from consumer products. Section 41712 also provides that the Board shall not adopt regulations unless the regulations are technologically and commercially feasible and are necessary. In the Consumer Product Control Plan approved by the Board in June 1989, a goal of a 50 percent reduction of VOC emissions from consumer products was targeted.

The California Clean Air Act requires each district that is non-attainment for the state air quality standard for ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide to develop a plan for attaining and maintaining the standards by the earliest practicable date and to achieve a reduction in districtwide emissions of 5 percent or more per year for each non-attainment pollutant or its precursors.

As described in this report, consumer products are a significant source of VOC emissions in California and one that is largely unregulated. The VOCs used in consumer products are photochemically reactive and contribute to the state ozone and PM-10 problem, and therefore they need to be controlled. 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 and achieve emission reductions from this solvent source category to the maximum extent feasible.

III.

PRODUCT DESCRIPTIONS AND SUMMARY OF THE PROPOSED STANDARDS

A. TECHNOLOGICALLY AND COMMERCIALY FEASIBLE VOC STANDARDS

Health and Safety Code Section 41712 requires that all consumer product regulations adopted by the Board must be technologically and commercially feasible. It was necessary to establish criteria for staff to use in reviewing information and developing recommendations for VOC limits.

Staff did not attempt to instruct industry on how to formulate or reformulate a product; staff have neither the expertise nor desire to do so. Rather, staff took the view that generally within a given product category, products that perform similar functions should not have large differences in VOC content or emissions. The underlying question here is, "If other products have a low VOC product, while performing similarly, why is this manufacturer not able to do the same or better?" An example of this concept which currently exists in California is the architectural coatings suggested control measure approved by the Board in May 1989. The general strategy in establishing standards in the architectural coatings suggested control measure was to identify low VOC products in the market and attempt to direct research and product development to have all similar products at essentially the same low VOC level. This same strategy was followed in the present regulation.

1. Commercially Feasible

The term "technologically and commercially feasible" is not defined in the Health and Safety Code. Because regulation of consumer products is new to the ARB, a working definition of this term is needed. For the purposes of the regulation, staff has concluded that a regulation is "commercially feasible" as long as the "basic market demand" for each regulated consumer product can be met. In other words, a regulation is commercially feasible if there will be sufficient products available to satisfy the consumer demand for products of a particular product category. This does not mean that products must perform in exactly the same manner as currently available

divided by the sum of the annual sales (pound/year). This calculation was performed on each product form (e.g., aerosol sprays) as well as for each product category.

1. Air Fresheners

Air fresheners are used for the purpose of masking odors, providing a scent, or deodorizing. Dual Purpose aerosol air freshener/disinfectant sprays designed to freshen or deodorize air are also included under the air freshener category. These products may be used as air fresheners in addition to being used as hard surface disinfectants. Air fresheners are used in household, automotive, institutional, and commercial settings to treat unpleasant odors. This is accomplished by masking the odor with a pleasant scent or removing the odor. While most air fresheners mask odors, a few claim to remove the offending odors by chemically reacting with them.

Air fresheners are available in a wide variety of forms including, but not limited to, aerosol sprays, liquids (alone or within absorbing materials such as pads and wicks), gels, powders, crystals and solid blocks.

The formulations and VOC content of air fresheners varies widely with the product form. The sales-weighted average VOC content ranges from 3.5 for solid air fresheners to 96% for single phase aerosol products. Air fresheners account for about 17,300 pounds per day (lbs/Day) of VOC emissions in the state.

2. Automotive Windshield Washer Fluid

Automotive windshield washer fluid is a liquid designed for use in a motor vehicle for the purpose of cleaning, washing, or wetting the windshield. The primary purpose of the methanol and isopropanol used in washer fluids is to impart a freezing-point depression to the water used in the system, thereby preventing the water from freezing when low ambient temperatures are encountered. Methanol and isopropanol, like other organic materials such as the ethylene glycol found in engine cooling systems, provide freezing-point depression and boiling-point elevation to water in varying degrees, depending on the amount of organic material added to the solution. The methanol and isopropanol also provide some supplementary cleaning properties to the detergents also contained in these to help clean insects and other soils from the windshields.

Windshield washer fluids are sold exclusively as liquids since the motor vehicle's windshield washer system is designed to spray fluid through a pump. Windshield washer fluids are generally sold in two types of formulations: (1) "ready-to-use" requiring little or no dilution and (2) "concentrated" generally requiring some dilution by the consumer, the degree of dilution depending on the ambient temperatures to be encountered. ARB's shelf survey revealed that ready-to-use formulations have VOC contents that generally range from 23% to 40% methanol by weight. The sales-weighted VOC content of ready-to-use fluids in California is estimated at 35% VOC by weight. Concentrated formulations typically range from 35% to 80% methanol

by weight. These fluids account for about 48,000 lbs/Day of VOC emissions and are the second largest emitting product category proposed for control.

3. Bathroom and Tile Cleaners

Bathroom and tile cleaners are defined in the regulation as cleaners specifically for the bathroom. Included are both all-purpose bathroom cleaners and hard surface bathroom cleaners. The bathroom and tile cleaner category contains a wide spectrum of products including cleaners containing sodium hypochlorite (bleach) for mold and mildew stains, acidic formulations to remove stains and scale resulting from water hardness, abrasive formulations for hard surfaces, and disinfectant cleaners. Many of these products also contain surfactants and solvents for general cleaning. Emissions of these products are on the order of 900 lbs/Day.

Bathroom and tile cleaners are available in aerosol, liquid, pump spray and solid form. The sales weighted-average VOC contents for the aerosol, liquid, pump spray and solid are 6.0%, 2.0%, 0.6% and 6.2% respectively.

4. Engine Degreasers

Engine degreasers are specialty cleaning products designed to remove grease, grime, oil and other contaminants from the external surfaces of engines and other mechanical parts. Engine degreasers contain VOCs which are used as propellants and as solvents to dissolve the contaminants before they are rinsed away.

Engine degreasers are manufactured and marketed only in the aerosol form. Based on the survey, the VOC content ranges from 23% to 95% by weight with most being above 80 percent. The sales-weighted average VOC content is 94%. Emissions are about 9,000 lbs/Day.

5. Floor Polish (Wax)

Floor waxes and polishes are defined in the regulation as waxes, polishes, finish restorers or any other products for the purpose of polishing, protecting or enhancing the surfaces of floors. Excluded are products only for the purpose of cleaning floors, industrial spray buffing products, and those products formulated for unfinished wood floors. These products contain primarily water with various polymers or waxes that form the final hard surface layer.

The vast majority of floor waxes and polishes are used on flexible flooring materials such as vinyl and vinyl composite. These products include both "dry bright" products used mainly in households and products that must be buffed with a buffing machine. Products requiring buffing are typically used on flooring in institutions and businesses with heavy traffic such as supermarkets, department stores and hospitals. A small number of floor products are available for nonresilient flooring such as marble and wood floors.

According to the ARB consumer products survey, about 98% of the market is comprised of liquid products for use on nonwood surfaces, primarily on flexible flooring materials. The remaining portion of the market consists of aerosols and pastes most of which are used on wood flooring. The sales-weighted average VOC contents for flexible flooring products is around 5% and that for wood floor wax around 90%. Emissions for this category are estimated to be about 5,200 lbs/Day.

6. Furniture Maintenance Products

Furniture maintenance products are defined in the proposed waxes, polishes, conditioners, moisturizers and other products designed for the purpose of polishing, protecting or enhancing finished wood surfaces. Excluded from the definition are floor polishes and waxes, which are covered separately by the regulation, and products formulated only for the purpose of cleaning.

Furniture maintenance products are emulsions that are either sprayed on the wood surface or applied with a cloth or pad. The product is then rubbed into the wood surface. During the wiping process the water phase is absorbed by the cloth while the solvent/wax/polish phase remains on the wood surface. The solvents eventually evaporate, leaving the wax/polish layer.

Furniture maintenance products are available as aerosols, solid/paste, and other forms which consist primarily of liquid and pump spray products. The sales-weighted average VOC content for these forms are 27%, 86% and 6.7% respectively. Emissions for this category are estimated to be approximately 5,600 lbs/Day.

7. General Purpose Cleaners

General purpose cleaners have been defined in the proposed regulation as formulations designed for general, all-purpose cleaning. Specialty cleaning products for use in specific situations are not included in this category. Also excluded from the category are bathroom and tile cleaners which are regulated under a separate category. Typical cleaning agents used in general purpose cleaners may be categorized as alkalinity agents, surfactants, solvents and abrasives.

General purpose cleaners are used for general, all-purpose cleaning as opposed to specialty applications. Liquid products are used either "straight" or diluted. These products are applied to many different surfaces, but especially to floors or other large surfaces with a mop, sponge or rag. Some scrubbing is usually required for the product to be effective. Rinsing may or may not be required after the use of these products.

According to the ARB consumer products survey, the average VOC content of all forms of general purpose cleaners is about 3%. The sales-weighted average VOC contents for liquids, pumps, and solids are 4.0%, 5.6% and 0.2%, respectively. The sales-weighted average VOC content for aerosols is 18%. However, aerosols make up less than 1% of the market based on the ARB

survey. Estimated VOC emissions for general purpose cleaners are 9,800 lbs/Day.

8. Glass Cleaners

Glass cleaners are specialty cleaning products that are designed primarily for cleaning surfaces made of glass. Glass cleaners typically have a high water content, with short carbon chain alcohols such as isopropyl alcohol or ethyl alcohol used to dissolve oily soils, and surfactants to loosen soil. Mild alkalies such as ammonia are sometimes added as a cleaning booster. There are also acid-based formulations containing vinegar as the cleaning agent, which is not as effective as ammonia, and therefore has a higher solvent (VOC) content to boost performance.

Glass cleaners are found in aerosol and liquid/pump spray forms. The sales-weighted average VOC content for aerosols and liquid/pump forms are 12% and 5.5% respectively. Glass cleaner emissions are about 4,600 lbs/Day in California.

9. Hairspray

Hairsprays are consumer products designed primarily for dispensing droplets of resin (film forming polymer) on and into the hair coiffure (hair style), which enables users to keep their hair in position for a period of time, unaffected by the weather and atmospheric humidity.

The key ingredient in all hairsprays is the resin. The holding of the hair is carried out by a spot welding of one hair to another. When the product is sprayed on the hair, it collides in the form of droplets. The volatile nature of the droplet allows it to dry rapidly, and create an invisible bond to the hair and its neighbor. Hence, the resin must have good adherent strength. Its adhesive quality must be such that it can be readily removed by shampooing, i.e., water soluble.

Hairspray products are packaged in aerosol or pump form. The sales-weighted average VOC contents for hairspray formulations currently available are 94% for aerosols and 70% for pumps. Hairspray emissions are 92,000 lbs/Day (46 T/D) and are the largest emitting product category under consideration.

10. Hair Mousse

Hair mousse is a hair styling foam which facilitates styling of a coiffure and provides limited holding power. The polymer can be considered the active ingredient in the mousse formulation. The polymer provides the desired hold and leaves the hair with a soft, natural feel.

A hair mousse is applied by first discharging the foam into the palm of the hand in an amount indicated by the directions. The stiff foam retains its shape, making measurement easy and fairly precise. The foam is then spread evenly through the toweldried, shampooed hair before combing and

styling by any conventional technique (rollers, blow-waving, finger drying, etc.).

Hair mousses are available in aerosol form only. The sales-weighted average VOC content of hair mousse is 12%. Emissions are estimated to be approximately 1,200 lbs/Day.

11. Hair Styling Gel

Hair styling gel is a high viscosity, (often gelatinous) substance that contains resin and is applied to the hair to aid in styling and sculpting of the hair coiffure. The hair fixative polymer is a film forming resin which is soluble in the gel solvent (usually water or dilute aqueous alcohol). This product imparts hair holding properties and provides some degree of conditioning. The hair styling gel is applied by placing a small amount onto the hand and then massaging it into the hair. The main advantage of hair styling gels is that it allows the user to apply it to wet or dry hair, and it allows the hair to be recombbed or restyled several times.

Hair styling gels are packaged in pump and liquid/gel forms. The sales-weighted average VOC contents for hair styling pumps and liquid/gels are approximately 16% and 10% respectively. Emissions from hair styling gels are estimated to be 800 lbs/Day.

12. Insect Repellent

For the purposes of this regulation, "insect repellent" shall apply only to those aerosol products which are used on humans. Insect repellents are classified under the general category of pesticides which are registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Insect repellents are not designed to kill insects; rather, they prevent biting insects such as mites, chiggers, deerflies, and mosquitos from making contact with human skin or clothing.

Insect repellents come in a variety of forms: aerosol sprays, pump sprays, liquids, creams, lotions, gels, sticks, towlettes and foams. Of these, the aerosol and pump sprays dominate the California insect repellent market. The sales-weighted average VOC contents is 72%. Emissions for all forms of insect repellents are estimated at about 900 lbs/Day.

13. Laundry Prewash

Laundry prewash is a specialty product that is applied to a fabric prior to laundering and that supplements and contributes to the effectiveness of laundry detergents and/or provides specialized performance. Depending on the product form, the product is sprayed, poured, or rubbed directly onto the fabric until the soiled area is saturated. After the product is applied, the fabric is rubbed together in the treated area by hand. The product is allowed to soak into the fabric for one to three minutes. The fabric is then laundered in the regular machine wash cycle with laundry detergent.

Laundry prewashes are sold in aerosol, pump, liquid, and solid product forms. Results from the survey show the VOC content for aerosols ranged from 21% to 74% by weight with a sales-weighted average of 35%. For liquids, the VOC content ranged from 0.2% to 63% and a sales-weighted average of 5%. Only one manufacturer submitted data for pump products. The sales-weighted average for these products is 6%. For solid stick products, the VOC content ranged from 5% to 36% with a sales-weighted average of 24%. Emissions from this category are estimated at 4,000 lbs/Day.

14. Nail Polish Remover

Nail polish remover is a product primarily used to remove nail polish and coatings from fingernails or toenails. They are generally solvents or mixtures of solvents which help remove nitrocellulose, a primary constituent in nail polish. They are often modified by the inclusion of such constituents as oils, emollients, or other agents that are designed to reduce the defatting action of the solvents.

Nail polish removers are manufactured in liquid, cream, sponge, and towelette forms. Creams and sponges were not reported in the survey and only one company submitted data on towelettes. The liquid nail polish removers dominate approximately 99% of the market. Emissions for nail polish remover are on the order of 2,200 lbs/Day.

Based on the survey, the VOC content for liquids range from 76% to 98% by weight with the sales-weighted average of 91%. The VOC content for the towelettes is also in this range. In addition, information obtained from the shelf survey and literature search indicate that the VOC content of sponges and creams is similar to that of the liquids.

15. Oven Cleaners

Oven cleaners are any specialty cleaning product designed to clean and to remove dried food deposits from interior oven surfaces. This does not include microwave ovens, which use a different cleaning formulation, similar to a glass cleaner.

Oven cleaners consist of both caustic and non-caustic formulations. Caustic formulations typically contain 4 to 20% caustic (potassium or sodium hydroxide) as an alkaline agent, with surfactants and solvents suspended in an emulsion. The solvent solubilizes grease deposits and allows the caustic to penetrate and saponify the grease to a soap form. Baked-on food deposits are also dissolved. Caustic formulations can be used without applying any oven heat and left on overnight, or they can be left on the oven interior for 10 to 20 minutes after heating the oven to 200 degrees F. The application of heat speeds up reaction between the caustic and the fatty acids contained in grease deposits.

Non-caustic formulations contain weakly alkaline salts, and are used with the oven heated to 475 degrees for 30 minutes. These formulations are lower in VOC content than the caustic ones. The aerosol form ranges from 5-8% VOC content, with more propellant than the caustic formulations, and no

grease-cutting solvents. The caustic aerosol formulations range from 7-11% VOC content. Propellants used in the aerosol products are typically butane or propane. Oven cleaners are made in ready-to-use form, so there is no dilution required.

Oven cleaners are manufactured in aerosol, liquid and pump form. The sales-weighted average VOC contents for the aerosol, liquid and pump forms are 10%, 5%, and 10%, respectively. Emissions are about 2,000 lbs/Day.

16. Shaving Cream

Shaving cream is an aerosol product which dispenses a foam lather intended to be used with a blade, cartridge razor or other wet shaving system in the removal of facial or other bodily hair. Shaving creams are used to moisten the hair shaft and moisten/lubricate the skin surface.

Shaving cream is packaged in aerosol form only. This represents 100 percent of the market. The sales-weighted average VOC content for shaving creams is 7%. Associated emissions are about 500 lbs/Day.

C. PROPOSED STANDARDS

The proposed standards were established after review of the ARB survey responses, numerous consultation meetings with industry representatives, review of available literature materials, and after analyzing the technological and commercial feasibility of each standard. A summary of the proposed standards, the percent of the market that complies and the emissions data for each product is presented in Table 3A - 3B. For all product categories proposed for regulation, there are products available that meet the standard for a particular end use. For 11 product categories, there are complying products that are available in all product forms. They are the engine degreasers, furniture maintenance products, general purpose cleaners, glass cleaners, hairsprays, hair mousses, insect repellents, laundry prewashes, oven cleaners, nail polish removers, and shaving creams. Results from the VOC survey indicate that for nine product categories there are product forms where the form specific complying market share is at least 50 percent or more. One example is the air freshener category which contains three product forms - "liquids/pump sprays", "solids/gels", and "other", whose form-specific complying market shares are 61%, 98%, and 84%, respectively. Another example is the hair styling gel category which has a form-specific complying market share of 73% for the "liquid/gel" product forms. The remaining seven product categories are the bathroom and tile cleaners, floor polishes, furniture maintenance products, general purpose cleaners, glass cleaners, hair mousse, and oven cleaners.

Five of the six product categories contain limits that are different from those listed in the Bay Area Air Quality Management District regulation. These categories are the air fresheners, automotive windshield washer fluids, engine degreasers, glass cleaners, and oven cleaners. Except

TABLE 3A

Summary of Consumer Product Standards and Emissions Data

<u>Category</u>	<u>Total Category Emissions lbs/Day</u>	<u>% Of Product Form Market Share (Based on sale)</u>	<u>% Of Product Form Emission Share</u>
Air Fresheners			
Single Phase Aerosols		4	18
Double Phase Aerosols		45	63
Liquids/Pump Sprays		20	14
Solids/Gels		29	3
Other		2	2
Dual-Purpose Aerosol Air Fresheners/ Disinfectants		100%(1)	100%(1)
Sub Total:	17,300	100%	100%
Automotive Windshield Washer Fluids			
Liquids		100%	100%
Sub Total:	48,000	100%	100%
Bathroom & Tile Cleaners			
Aerosols		37	65
Liquids		48	28
Pump Spray		13	2
Solids		2	5
Sub Total:	900	100%	100%
Engine Degreasers			
Aerosols	9,000	100%	100%
Floor Polishes (Waxes)			
Products For Flexible Flooring Materials		89(2)	74(2)
Products For Nonresilient Flooring	(2)	10(2)	8
Wood Floor Wax		1	18
Sub Total:	5,200	100%	100%
Furniture Maintenance Products			
Aerosols		72	87
All Other Forms		28	13
Sub Total:	5,600	100%	100%
General Purpose Cleaners			
Aerosols		<1	3
Liquids/Pump Sprays		59	93
Solids		41	4
Sub Total:	9,800	100%	100%

TABLE 3A (con't)

Summary of Consumer Product Standards and Emissions Data

<u>Category</u>	<u>Total Category Emissions lbs/Day</u>	<u>% Of Product Form Market Share (Based on sale)</u>	<u>% Of Product Form Emission Share</u>
Glass Cleaners			
Aerosols		6	12
Liquids/Pump Sprays		94	88
Sub Total:	4,600	100%	100%
Hairsprays			
Aerosols		74	80
Pump Sprays		26	20
Sub Total:	92,000	100%	100%
Hair Styling Gels			
Pumps		4	5
Liquids/Gels		96	95
Sub Total:	820	100%	100%
Hair Mousses			
Aerosols	1,160	100%	100%
Insect Repellents			
Aerosols	880	91%	99%
Laundry Prewashes			
Aerosols/Solids		15	56
All Other Forms		85	44
Sub Total:	4,000	100%	100%
Oven Cleaners			
Aerosols/Pump Sprays		78	88
Liquids		22	12
Sub Total:	2,000	100%	100%
Nail Polish Remover			
Liquids	2,200	100%	100%
Shaving Creams			
Aerosols	520	100%	100%
TOTAL:	203,980 (102 T/D)		

Summary of Consumer Product Standards and Emissions Data.

Product Category	1/1/94 Proposed Standard % VOC Content	Total Number Of Products In Survey	Number Of Products Complying	Form (3) Specific Complying Market Share %	Emission Reductions lbs/Day
Air Fresheners					
Single Phase Aerosols	70 (4)	5	0	0	460
Double Phase Aerosols	30 (4)	65	20	4	760
Liquids/Pump Sprays	18 (4)	136	84	61	340
Solids/Gels	3 (4)	72	33	98	200
Other	3 (5)	13	9	84	120
Dual Purpose Aerosol Air Fresheners/1 Disinfectants	60	5	1	3	2,200
Sub Total:		296	147		4,080
Automotive Windshield Washer Fluids					
Liquids		IR ⁽⁷⁾	IR	IR	---
Type A Areas ⁽⁶⁾	35 (4)				- 0 ⁽⁸⁾
All Other Areas	10 (4)				33,200
Sub Total:		IR			33,200
Bathroom & Tile Cleaners					
Aerosols	5	14	5	7	100
Liquids	5	53	35	88	100
Pump Spray	5	6	4	98	6
Solids	5	2	0	0	12
Sub Total:		75	44		220
Engine Degreasers					
Aerosols					
Sub Total:	75 (4)	11	4	2	1,860
Floor Polishes (Waxes) Products For Flexible Flooring Materials Products For Nonresilient Flooring Wood Floor Wax					
Products For Flexible Flooring Materials	7	148	115	78	940
Nonresilient Flooring	10	UTQ ⁽⁹⁾	UTQ ⁽⁹⁾	UTQ ⁽⁹⁾	100
Wood Floor Wax	90	6	5	-100	1
Sub Total:		154	120		1,041
Furniture Maintenance Products					
Aerosols	25	43	22	21	820
All Other Forms	7	24	16	70	240
Sub Total:		67	38		1,060
General Purpose Cleaners					
Aerosols	}10	26	13	20	140
Liquids/Pump Sprays		159	139	86	3,180
Solids		9	8	-100	- 0
Sub Total:		194	160		3,320
Glass Cleaners					
Aerosols	(4)	29	6	8	300
Liquids/Pump Sprays	}6 (4)	59	26	73	920
Sub Total:		88	32		1,220

TABLE 3B (con't)

Summary of Consumer Product Standards and Emissions Data

Product Category	1/1/94 Proposed Standard % VOC Content	Total Number Of Products In Survey	Number Of Products Complying	Form (3) Specific Complying Market Share %	Emission Reductions lbs/Day
Hairsprays					
Aerosols	(4)	186	25	2	12,800
Pump Sprays	{80	96	41	32	1,600
Sub Total:		282	66		14,400
Hair Styling Gels					
Pumps	}	6	0	0	30
Liquids/Gels	}6%	86	58	73	520
Sub Total:		92	58		550
Hair Mousses					
Aerosols	16	88	66	89	70
Insect Repellents					
Aerosols	65	11	4	32	260
Laundry Prewashes					
Aerosols/solids	22	10	4	44	830
All Other Forms	5	14	9	36	380
Sub Total:		24	13		1,210
Nail Polish Remover					
Liquids	85	25	11	13	140
Oven Cleaners					
Aerosols/Pump Sprays	(4) 8	32	13	13	360
Liquids	5	11	8	93	40
Sub Total:		43	17		400
Shaving Creams					
Aerosols	5	17	5	30	160
TOTAL:		1,467	785		63,190 (32 T/D)

- (1) Percentage was calculated separately from other categories.
- (2) It was assumed that 10% of the market share and emissions from nonwood floor products are due to products for nonresilient floors, the remaining 90% being due to product for flexible flooring.
- (3) The market share represented by complying products within the specific form (e.g. lb complying product form/lb total product form)
- (4) Limits effective 1/1/93.
- (5) Assumed that most of the air freshener products in the "other" category actually fall under the "solid" category since 84% of the products comply with the 3% standard. Therefore, a 3% standard was used to calculate the emission reduction.
- (6) Type A Areas include only the following: Del Norte, Shasta and Trinity Counties, Great Basin Valley, Lake Tahoe, Mountain Counties, and Northeast Plateau Air Basin.
- (7) IR = Insufficient Response.
- (8) - 0 denotes negligible emission reductions.
- (9) Unable to quantify.

for engine degreasers the limits were made more restrictive than in the BAAQMD regulation.

Three product categories contain product forms with no complying products. They are air fresheners ("single phase aerosols"), bathroom and tile cleaners ("solids"), and hair styling gels ("pumps"). Based on discussions with industry representatives, reformulation to the proposed limit is feasible for single phase aerosol air fresheners. Although there were no complying "solid" bathroom and tile cleaners, it should be noted that there were only two products reported to the VOC survey under "solid" bathroom and tile cleaners, and these products represented about 2% of the market for this product category. According to industry representatives, the pumps reported under the hair styling gel category in the ARB survey are really hairspray products that are labeled as gels for marketing purposes and would be subject to the hairspray standard.

Automotive windshield washer fluid is the second largest emissions category. Industry suggested a two-tier limit for different parts of the state. The proposed windshield washer fluid standard was based on the physical need for VOCs used in windshield washer fluids to provide a freezing point depression for the fluid. Two standards are proposed for windshield washer fluid based on the wintertime temperatures found in California. For those areas that experience below freezing temperatures, the standard is set at 35% VOC which will provide antifreezing protection to -25 degrees Fahrenheit, and for the majority of Californians who live in the more temperate regions of the state where the mean minimum temperature in January does not fall below 20 degrees Fahrenheit the standard is 10 percent which will provide antifreezing protection to 20 degrees Fahrenheit.

D. STANDARD EFFECTIVE DATES

For air fresheners, automotive windshield washer fluids, engine degreasers, glass cleaners, hairsprays, and oven cleaners, the date the standards become effective is January 1, 1993. In this case, the intent of the statewide regulation is to repeal the BAAQMD consumer product regulation that was promulgated by the ARB in June 1990. For the remaining 10 categories and other parts of California, the standards become effective on January 1, 1994. For those consumer products that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the VOC standards become effective on January 1, 1995 to allow time for reformulated products to be re-registered.

For four product categories, staff is proposing to have future effective standards. Future effective standards are proposed for air fresheners ("single phase aerosols"), engine degreasers, hairsprays, and nail polish removers. Table 4 below summarizes the product categories with future effective standards. Based on their share of the market, "single phase aerosols" contribute a disproportionately high amount of emissions. They account for 4% of the market and 18% of the emissions. This portion of the market could possibly grow if not controlled. Single phase aerosol air fresheners are composed almost entirely of solvent, unlike most aerosol air

fresheners which are dual phase products with a water phase and a solvent phase. Single phase products produce a "dry" spray due to the rapid evaporation of solvents after spraying. Also, these products do not have to be shaken before use like the dual phase air fresheners. However, both single and dual phase aerosol air fresheners perform the same basic function. This future effective limit is intended to drive technology to develop single phase aerosols that would meet a 30% VOC limit in 1996; the same limit as other aerosol air fresheners. Without specifying the same limits, other manufacturers could switch to single phase technology and more than double their emissions.

Engine degreasers, hairspray and nail polish remover products are currently being sold in California that can meet the proposed future effective standards for these products. However, these products do represent newer technologies in the marketplace and in each case the products have a smaller percent share of the market. To allow for new technologies to develop and for other manufacturers to develop and market a viable product, the standard for hairsprays will not become effective until 1998 and that for engine degreasers and nail polish removers in 1996. Additional time was allowed for hairsprays due to the complexity of polymer research and development. The staff intends to further evaluate the future effective dates and limits for other product categories and present its recommendations to the Board next year.

TABLE 4

Proposed Future Effective Standards

<u>Product Category</u>	<u>Future Effective Date</u>	<u>Proposed Standard (% VOC)</u>	<u>Emission Reductions (lbs/day)</u>
Air Fresheners, Single Phase Aerosol	1/1/96	30	620
Engine Degreasers	1/1/96	50	2,340
Hair Sprays	1/1/98	55	24,160
Nail Polish Removers	1/1/96	75	220
		TOTAL:	27,340 (13.7 T/D)

IV.

SUMMARY OF THE PROPOSED REGULATION

The major requirements of the regulation are presented and explained below. The sections discussed include the VOC standards for each product category, exemptions to the standards, and administrative requirements, as well as an innovative product provision which offers a market-based alternate means of compliance to the standards.

A. STANDARDS

The proposed statewide comprehensive consumer products regulation is a regulation that would establish VOC content standards for 16 different consumer products. The effective date for six of the product categories is January 1, 1993. These products were also regulated under the regulation adopted by the Air Resources Board in June 1990 for the Bay Area Air Quality Management District. Because the Bay Area Regulation is no longer necessary, staff is proposing that it be repealed. The effective date for the remaining categories is January 1, 1994 with the exception of FIFRA products which are described below. Future effective standards have also been proposed for hairsprays, nail polish removers and single phase aerosol air fresheners. Table 5 lists the 16 consumer products and the recommended standards.

TABLE 5

Proposed Consumer Product VOC Standards
Percent by Weight

<u>Product Category</u>	<u>1/1/93</u>	<u>1/1/94</u>	<u>Future Effective (Date)</u>
Air Fresheners			
Single Phase Aerosols	70		30 (1/1/96)
Double Phase Aerosols	30		

TABLE 5 (Con't)

Proposed Consumer Product VOC Standards Percent by Weight			Future Effective (Date)
<u>Product Category</u>	<u>1/1/93</u>	<u>1/1/94</u>	
Liquids/Pump Sprays	18		
Solids/Gels	3		
Dual-Purpose Aerosol Air Freshener/Disinfectant		60	
Automotive Windshield Washer Fluids *			
Type A Areas	35		
All Other Areas	10		
Bathroom and Tile Cleaners		5	
Engine Degreasers	75		50 (1/1/96)
Floor Polishes (Waxes)			
Products for Flexible Flooring Materials		7	
Products for Nonresilient Flooring		10	
Wood Floor Wax		90	
Furniture Maintenance Products			
Aerosols		25	
All Other Forms except solid/paste		7	
General Purpose Cleaners		10	
Glass Cleaners	6		
Hairsprays	80		55 (1/1/98)
Hair Styling Gels		6	
Hair Mousses		16	
Insect Repellents			
Aerosols		65	

* For automotive windshield washer fluids, "Type A" areas include only the following areas where winter temperatures between 20°F and -25°F can be reasonably expected to occur: Del Norte, Shasta, and Trinity Counties, and the Lake Tahoe, Mountain Counties, Great Basin Valleys, and Northeast Plateau Air Basins.

TABLE 5 (Con't)

Proposed Consumer Product VOC Standards
Percent by Weight

<u>Product Category</u>	<u>1/1/93</u>	<u>1/1/94</u>	<u>Future Effective (Date)</u>
Laundry Prewashes			
Aerosols/Solids		22	
All Other Forms		5	
Nail Polish Removers		85	75 (1/1/96)
Oven Cleaners			
Aerosols/Pump Sprays	8		
Liquids	5		
Shaving Creams		5	

The standards prohibit the sale, supply, offer for sale, or manufacture for sale in California of any consumer product which, at the time of sale or manufacture, contains any VOC in excess of the limits specified. Also, the standards are set on the basis of the percentage VOC by weight and apply to the product only after the minimum recommended dilution has taken place. An exemption has been provided for incidental, "spot" use of a product in concentrated form. This will make allowance for infrequent uses of small amounts of concentrated products such as general purpose cleaners in cases where a higher VOC content is desired.

A one year sell through period has been provided for retailers and suppliers to clear out non-complying products after the effective date of the standard. This does not apply to products in the Bay Area that have effective standards January 1, 1993 (air fresheners, automotive windshield washer fluid, glass cleaners, hairspray, oven cleaners, and engine degreasers). Because the court order specified that the emission reductions must occur by February 1, 1993 it is necessary to prohibit the sale of any non-complying product after the January 1, 1993 effective date.

1. FIFRA Products: For those consumer products registered under the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)[3], the effective date of the VOC standards is one year after the effective date listed in the Table of Standards for the product category which contains the FIFRA product. This provision will allow additional time for companies to re-register any of their reformulated FIFRA products with EPA. FIFRA requires the registration of pesticide products, and defines "pest" as any insect, rodent, nematode, fungus, weed, or any form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism (except viruses, bacteria, or other micro-organisms on or in living man or other living

animals)(7 U.S.C., Section 136(u)). By virtue of this definition, FIFRA-registered products generally tend to fall under the product categories of air fresheners (dual purpose aerosol air freshener/spray disinfectants), bathroom and tile cleaners, general purpose cleaners, and insect repellents, based on any disinfectant or pesticide claim made by the manufacturer for the product.

2. Ozone Depleting Compounds: Another provision stipulates that, effective January 1, 1993 any consumer product listed in the table of standards that is sold or manufactured in California cannot contain any ozone-depleting compound which is regulated by the EPA or with an ozone-depleting potential of greater than 0.00. This provision only applies to new product formulations introduced to the market after the effective date of the regulation and will not apply to any product formulation which is sold, supplied, or offered for sale in California prior to the effective date of the regulation. In addition, the provision does not apply to any ozone-depleting compounds that may be present as an impurity in a consumer product in an amount equal to or less than 0.01% by weight. This provision was established to limit the amount of exempt ozone-depleting compounds used in consumer products to ensure that manufacturers do not switch to ozone depleting compounds when they are reformulating current products to lower VOC content. This is generally the same as a similar provision in the antiperspirant and deodorant regulation that the Board adopted in November 1989.

B. INNOVATIVE PRODUCTS

A consumer product can be exempted from the VOC standards in the regulation if it can be classified as innovative. An innovative product is a product which may have a VOC content greater than the applicable VOC standard, but which emits less VOC emissions than a representative consumer product which does meet that standard. To be eligible for this exemption, a manufacturer must demonstrate that use of the product will result in less emissions than a complying product, due to some characteristic of the product formulation, design, delivery system, or other factors. The manufacturer must also identify the VOC content and, if appropriate, test methods that can be used to enforce the innovative product exemption. This provision is described in further detail in Chapter VI, General Issues.

C. EXEMPTIONS

1. Vapor Pressure: The proposed regulation exempts any VOC which either, 1) has a true vapor pressure of less than 0.1 mm Hg at 20 degrees Centigrade (C) or, 2) consists of more than 12 carbon atoms, if the vapor pressure is unknown. Those VOCs with vapor pressures less than 0.1 mm Hg have very low volatility and due to the product formulation characteristics are less emissive than higher volatility products. Examples of the exempt VOCs are the high molecular weight resins used in hairsprays and floor polishes, surfactants used in cleaners and the heavy oils used in furniture polishes.

2. **Fragrance and Colorants:** The VOC standards do not apply to fragrances and colorants up to a combined level of 2% by weight contained in any consumer product. This exemption was established to allow manufacturers a de minimus level of these substances in various products such that the products may be marketed in an appealing manner to consumers.

3. **Insect Repellents:** The VOC standards do not apply to 2-ethyl-1,3-hexanediol contained in personal insect repellents. This compound, found in small quantities, is considered an essential ingredient in a few insect repellents. In addition, the market share for products based on 2-ethyl-1,3-hexanediol is very small when compared to the dominant repellent ingredient, N,N-diethyl-m-toluamide (DEET). DEET is exempt because it has a vapor pressure less than 0.1 mm Hg.

4. **FIFRA Products:** The labeling requirements for consumer products do not apply to those products registered under FIFRA. Section 24(b) of FIFRA prevents the state from requiring any labeling or packaging in addition to or different than that required under FIFRA.

5. **Air Fresheners:** The VOC standards do not apply to air fresheners that are comprised entirely of fragrance not including exempt VOCs. This is to provide for air fresheners such as those used in cars, which consist of fragrance impregnated on a cardboard symbol or fragrance oils that are impregnated on potpourri. Excluding the weight of the cardboard substrate, the VOC content of the fragrance substance would be 100%. The active ingredient (e.g. the fragrance) is present in a more concentrated form, resulting in less VOC emissions over the life of the product.

6. **Para-Dichlorobenzene:** An exemption is allowed for air fresheners comprised of at least 98% para-dichlorobenzene. Staff are unaware of technology currently available to allow for the reduction of VOCs in air fresheners formulated at high concentrations of para-dichlorobenzene. There are some health concerns regarding para-dichlorobenzene and these are discussed further in Chapter VI, Issues.

D. ADMINISTRATIVE REQUIREMENTS

1. **Most Restrictive Limit:** Many consumer products can serve several functions, i.e., a bathroom and tile cleaner can also be used as a general purpose cleaner in the kitchen. In cases of such potential overlap between product categories, if the product is labeled or advertised as suitable for use as a consumer product for which a lower VOC standard is specified, then the lowest applicable standard shall apply. This provision does not apply to general purpose cleaners that by their very nature have multiple uses.

2. **Code-Dating:** No later than three months after the effective date of the regulation, consumer products subject to the VOC standards shall display the date of manufacture either on the container or on the packaging. If the manufacturer uses a code to indicate the date of manufacture, an explanation of the code must be filed with the Executive Officer of the ARB no later than 3 months after the effective date of the regulation. This will aid in

enforcement of the regulation by allowing inspectors to verify that only complying products are being sold in California after the effective date of the regulation. There is, however, a one-year sell-through period allowed for non-compliant products manufactured prior to the effective date of the standards.

3. **Registration:** Each manufacturer of consumer products that are sold in California must register such products with the ARB no later than March 1, 1991, and no later than March 1 of every third year thereafter. All registration material will be handled in accordance with the confidentiality protection procedure be specified in Title 17, California Code of Regulations, Sections 91000-91022. Registration items must include the following information:

- the brand name for each consumer product;
- the owner of the trademark or brand name;
- the product category to which the consumer product belongs;
- the product forms (aerosol, liquid, etc.);
- the California annual sales in pounds per year and the method used to calculate it;
- the total VOC content in percent by weight which (a) has a vapor pressure of greater than or equal to 0.1 mm Hg at 20 degrees Centigrade, or (b) consists of 12 or less carbon atoms, if the vapor pressure is unknown;

Products subject to registration include those products listed in the Table of Standards, products exempted under the 100% fragrance exemption, and an additional 23 products that are being evaluated and considered for future regulation.

This information will aid staff in developing additional standards for consumer products, and will eliminate the need for administering product surveys. It will also allow staff to track emissions from consumer products and to evaluate the effectiveness of the consumer product regulations.

E. VARIANCES

Any person who cannot comply with the requirements set forth in the section on standards, because of reasons beyond the person's reasonable control may apply in writing for a variance. The variance application shall state the specific reasons why a variance is sought, the proposed date(s) by which compliance with the standards will be achieved, and the methods by which compliance will be achieved.

Upon receipt of a variance application, the Executive Officer will hold a public hearing to determine whether, under what conditions, and to what

extent, a variance from the standards is necessary and will be permitted. All of the following findings must be made in order to grant the variance:

1. Compliance with the standards would result in extraordinary economic hardship, due to reasons beyond the reasonable control of the applicant,
2. The public interest in mitigating the hardship to the applicant outweighs the public interest in avoiding any increased emissions which would result from issuance of the variance,
3. The methods to achieve compliance can reasonably be implemented, and will achieve compliance as expeditiously as possible.

If a variance is granted, the variance order will specify a final compliance date by which compliance with the standards will be achieved, and the increments of progress necessary to assure timely compliance. The order may also contain any other conditions that the Executive Officer deems necessary to carry out the purposes of Division 26 of the Health and Safety Code. A variance's duration will be determined by the Executive Officer, and can also be terminated, upon failure to comply with any condition of the variance. Upon application of any person, the Executive Officer may hold a public hearing to review a variance, and for good cause may modify or revoke a variance.

F. TEST METHODS

Testing to determine the VOC content of a consumer product, or to determine compliance with the standards, shall be done using one or more of the following methods: (1) Method 24-24A, Part 60, Title 40, Code of Federal Regulations, Appendix A, July 1, 1988; (2) Method 18, Federal Register 48, no. 202, October 18, 1983; (3) Method 1400, NIOSH Manual of Analytical Methods, Volume 1, February 1984; or (4) Environmental Protection Agency Method 8240 "GC/MS Method for Volatile Organics," September 1986. The methods referenced in the regulation are not intended to be used by everyone. Their successful use requires someone thoroughly familiar with the use of the methods. Each method is designed for certain applications. Before a product can be tested, an evaluation of the nature and chemical properties of the product must be made. Based on the results of this evaluation, a method or combination of methods is selected for the use in determining the VOC content of the product. In recognition that other methods may be available to determine the VOC content, the proposed regulation would allow the use of alternative methods which can be shown to the satisfaction of the Executive Officer to accurately determine the concentration of nonexempt VOCs in a product, upon approval of the Executive Officer.

Staff is working to develop new test methods and improvements to existing methods. This work is being done both independent of and in cooperation with industry. Also, EPA is beginning to work toward development of new test methods for consumer products. Staff will follow and take advantage of EPA's efforts.

Compliance can also be demonstrated through calculation of VOC content from records of amounts of constituents making up the product.

The results of tests conducted to determine the VOC content of consumer products shall be subject to verification by the Executive Officer. The results of such tests as conducted by the Executive Officer or the Environmental Protection Agency shall take precedence over results of tests conducted by other parties when determining compliance with the regulation.

G. SEVERABILITY

Each section of the regulation is deemed severable, and if any part of the regulation is held to be invalid, the remainder of it will continue in full force and effect.

V.

IMPACTS ASSESSMENT

This chapter summarizes the emission reductions and the economic and environmental impacts associated with adoption of the proposed regulation.

A. EMISSION REDUCTIONS

The proposed regulation is designed to reduce the amount of volatile organic compounds emitted into the environment from consumer products. The proposed regulation would limit the volatile organic content of specified consumer products starting on January 1, 1994 or for products covered by the Bay Area Air Quality Management District's consumer product regulation, on January 1, 1993. There are additional future effective limits for four product categories starting on January 1, 1996. The estimated emission reductions are summarized in Table 6. Emission reductions are estimated to be approximately 31 tons per day in 1994 with an additional 14 tons per day by 1998. The total reduction of 45 tons per day for all consumer products in this proposal represents approximately a 45 percent reduction of emissions from the current level of over 100 tons per day.

TABLE 6

Summary of Emissions and Emission Reductions
from the Proposed Standards

<u>Product Category</u>	<u>Proposed Standard Percent VOC by Wt.</u>	<u>Emissions lbs/Day</u>	<u>Emission Reductions lbs/Day</u>	<u>Percent Reduction</u>
Air Fresheners				
Aerosol-2 phase	30	5,450	760	14
Aerosol-1 phase	70	1,550	460	30
	(30%-1996)		(620-1996)	40

TABLE 6 (Con't)

Summary of Emissions and Emission Reductions
from the Proposed Standards

<u>Product Category</u>	<u>Proposed Standard Percent VOC by Wt.</u>	<u>Emissions lbs/Day</u>	<u>Emission Reductions lbs/Day</u>	<u>Percent Reduction</u>
Liquid/Pump	18	1,270	340	27
Solid/Gels	3	300	200	67
Dual-Purpose Aerosol				
Air Freshener/				
Disinfectant	60	8,600	2,200	26
Other	3	140	120	86
Automotive Windshield Washer Fluids				
Type A Areas	35 (1993)	1,600	0	0
All Other Areas	10 (1993)	46,400	33,200	72
Bathroom & Tile Cleaners				
All Forms	5	900	220	24
Engine Degreasers	75 (1993) (50 - 1996)	9,000	1,860 (2,340-1996)	21 26
Floor Polishes (Waxes)				
Flexible Flooring Polishes	7	3,780	940	25
Nonresilient Floor Polishes	10	420	100	24
Wood Floor Wax	90	1,000	1	~0
Furniture Maintenance				
Aerosol	25	4,870	820	17
All Other Forms	7	730	240	33
General Purpose Cleaners				
All Forms	10	9,800	3,320	34
Glass Cleaners				
All Forms	6 (1993)	4,600	1,220	27
Hairsprays				
All Forms	80 (1993) (55 - 1998)	92,000	14,400 (24,160-1998)	16 26

TABLE 6 Con't

Summary of Emissions and Emission Reductions
from the Proposed Standards

<u>Product Category</u>	<u>Proposed Standard Percent VOC by Wt.</u>	<u>Emissions lbs/Day</u>	<u>Emission Reductions lbs/Day</u>	<u>Percent Reduction</u>
Hair Mousse All Forms	16	1,160	70	6
Hair Styling Gel All Forms	6	820	550	67
Insect Repellents Aerosol Sprays	65	880	260	30
Laundry Prewashes Aerosols/Solids	22	2,220	830	37
All Other Forms	5	1,780	380	21
Nail Polish Removers	85 (75-1996)	2,200	140 (220-1996)	6 10
Oven Cleaners Aerosol Sprays/ Pumps	8	1,750	360	21
Liquids	5	250	40	16
Shaving Creams All Forms	5	520	160	31
Total Cumulative Emission Reductions:			1993 ~ 53,000 (26 TPD)	
			1994 ~ 63,000 (32 TPD)	
			1996 ~ 66,000 (33 TPD)	
			1998 ~ 91,000 (45 TPD)	

* Emission Reduction in parenthesis represent the additional emission reductions after future effective VOC limits take effect.

B. ECONOMIC IMPACTS

The proposed regulation will require the reformulation of some products in each category. However, for all the product categories listed in the proposed regulation, there are products currently on the market which can meet the standards proposed for January 1, 1993 and 1994. There are also future effective limits for engine degreasers, hairsprays, nail polish removers, and single phase aerosol air fresheners. It is expected that industry will reformulate to maintain products within the same product forms

to meet both the 1993-4 and future effective standards and that there will be products available in these categories to meet the consumer demand.

Staff performed an economic analysis to determine the cost-effectiveness of the proposed regulation. Staff requested cost information from industry, however, little data was received. In estimating the economic impact, staff assumed that a manufacturer would reformulate an existing product to meet the proposed standard. Four significant costs were identified that are associated with reformulating a product to meet the requirements of the proposed regulation; 1) research and development, 2) efficacy testing, 3) stability testing, 4) safety testing, and 5) modification to the labels. Staff assumed that a typical reformulation would involve modification to current product formulations which would not require major retooling or equipment changes. Staff also assumed that manufacturers would market the reformulated product nationally and applied a proportional factor to the costs to take into account California's share of the national market for these products. Based on this scenario, the cost estimates to reformulate a product ranged from \$100,000 to \$2,000,000 per product. Annual cost estimates for reformulating a product line used in the analysis ranged from a low of \$16,000 per year to a high of over \$500,000 per year. The total cost to the industry is estimated to be between 11 and 360 million dollars.

The cost-effectiveness ratios ranged from - \$0.05 per pound of VOC reduced (net savings) to \$1.70 per pound of VOC reduced. The range in the cost effectiveness estimates reflects the uncertainty in the cost to reformulate the wide variety of products covered under the regulation. These cost-effectiveness ratios are favorable when compared to impacts on other industries from recently approved regulations that cover such categories as antiperspirants and deodorants, architectural coatings, and loading, ballasting and lightering operations on crude oil and gasoline cargo tankers.

The economic impact of the regulation on consumers is difficult to assess as it would depend on many factors including consumer preference, loyalty to a product, and the price of a product. The cost of reformulation is expected to be passed from the manufacturer to the consumer. The total increase in product cost will depend of the cost to reformulate and will most likely vary from product to product. Staff estimates that the increase in cost to the consumer will fall in the range of 1 to 23 cents per product unit. For a full discussion of the analysis and assumptions, refer to the Technical Support Document for this report.

C. SMALL BUSINESS IMPACTS

We evaluated the impact of the proposed regulation on small businesses to determine if small businesses would experience significant adverse economic impacts. Based on a comparison of the return on owner's equity (ROE) before and after costs associated with the proposed regulation, we concluded that small businesses engaged in retailing and wholesaling of consumer products and most small manufacturers would probably not be

adversely affected by the regulation if they choose to pass the cost on to the consumer.

D. ENVIRONMENTAL IMPACTS

The proposed regulation limits the amount of volatile organic compounds in consumer products. The primary environmental impact will be a decrease in VOC emissions to the environment from consumer products. Since VOCs are involved in the formation of tropospheric ozone, any reduction in VOC emissions is expected to result in a positive impact on air quality and public health.

No adverse environmental impacts from the implementation of the proposed regulation have been identified with respect to earth, water, plant, animal, noise level, and the use of land and natural resources. There would be an overall volatile organic compound emission reduction in California and a decrease in both ambient ozone and PM-10 levels. The proposed regulation prohibits any increase in the use of compounds which have a ozone depletion potential greater than 0.00. As a result, no adverse impact to stratospheric ozone is expected. Additionally, staff expects no significant increase in the emission of greenhouse gases. Due to nature of consumer products, the emission reductions would be directly proportional to the population of each area in the state.

VI.

GENERAL ISSUES

A. RELATIONSHIP TO OTHER REGULATIONS

1. Repeal of the Bay Area Regulation

In June 1990, the ARB (Air Resources Board) approved a regulation for consumer products in the Bay Area Air Quality Management District (BAAQMD) (Section 94520-94522, Title 17, California Code of Regulations). This regulation was developed in response to a U.S. district court order resulting from the consolidated cases of Citizens For A Better Environment v. George Deukmejian (Governor, Calif.) and Sierra Club v. Metropolitan Transportation Commission, et al.. The court order required the ARB or the BAAQMD to achieve emission reductions from consumer products in the BAAQMD of at least 1.0 ton per day by February 1, 1991 and 4.0 tons per day by February 1, 1993.

In an agreement between the ARB and the BAAQMD, the BAAQMD took responsibility for the adoption of an aerosol paint regulation that will achieve at least a 1.0 ton per day emission reduction by February 1, 1991. The ARB took responsibility for a regulation that will achieve at least 3.0 tons per day of emission reductions from consumer products. The ARB's consumer products regulation in conjunction with the BAAQMD aerosol paint regulation achieves a total VOC emission reduction of at least 4.0 tons per day by February 1, 1993.

The comprehensive statewide regulation being proposed would achieve at least a 5 ton per day emission reduction in the Bay Area by February 1, 1993 thereby exceeding the court ordered emission reduction requirement for the Bay Area. This is because we are now able to propose lower VOC standards than included in the Board's June action for a number of product categories. Staff recommends that the Board repeal the BAAQMD regulation if the current statewide proposal is adopted. The staff believes that the statewide regulation for consumer products is a more practical method of achieving the required emission reductions for the Bay Area. The statewide approach is generally more cost effective and enforceable than area specific control

measures. The staff also expects the statewide regulation to achieve greater emission reductions over time in the BAAQMD than required by the court order.

2. Relationship to Antiperspirant/Deodorant Regulation

In November 1989, the ARB approved a regulation controlling VOC emissions from antiperspirants and deodorants. This regulation limits the VOC content in stages to provide a 20% reduction in emissions by the end of 1992, and an additional 60% reduction by 1995. Nearly all the reductions occur from eliminating VOCs from the aerosol propellants used in aerosol deodorants. Industry can be given more time to comply if they prove they are making satisfactory progress on the development of a non-polluting propellant. An emissions reduction of 4.0 T/D is expected upon final compliance date.

The statewide comprehensive consumer products regulation will supplement, not preempt, the statewide antiperspirant/deodorant regulation, which is a "stand-alone" regulation. The innovative product exemption from the consumer products regulation, however, will be included in the antiperspirant/deodorant regulation, providing manufacturers with another option for compliance.

3. Authority of the ARB to Regulate Consumer Products that are Registered Under FIFRA

One commenter has suggested that the ARB lacks the legal authority to regulate consumer products that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA; 7 U.S.C. Sections 136-136(y)). ARB legal staff has analyzed this issue and concluded that the Board clearly has the legal authority to regulate these products.

FIFRA requires that "pesticides" be registered with EPA as a precondition to their sale and distribution. "Pesticide" is broadly defined by FIFRA to include any substance or mixture intended to prevent, destroy, repel, or mitigate any insect, fungus, virus, bacteria, or microorganism (other than microorganisms found in living man or living animals) 7 U.S.C. Sections 136(t) and (u). This definition includes certain dual-purpose air fresheners, bathroom and tile cleaners, insect repellents, and other consumer products that have been registered under FIFRA because they are intended by their manufacturers to prevent, destroy, repel, or mitigate pests.

It has been suggested that FIFRA preempts the ARB from adopting VOC standards for FIFRA-registered products. However, Section 24(a) of FIFRA, specifically allows the state to regulate the sale or use of pesticides as long as the state regulations do not permit any sale or use prohibited by EPA (7 U.S.C. Section 136v(a); National Agricultural Chemical Ass'n v. Rominger (E.D.Cal. 1980; 500 F. Supp 465)). Indeed, the California Department of Food and Agriculture (CDFA) has been regulating pesticides since 1901 and extensively regulates the sale and use of pesticides in California.

Given that the state is not preempted by FIFRA from regulating the VOC content of pesticides, which public agencies have the authority under state law to do so? One commenter has claimed that the proposed regulation of FIFRA-registered products impermissibly intrudes upon the pesticide registration scheme established in the California Food and Agriculture Code and administered by the CDFA.

We do not agree. Prior to the enactment of the Bronzan bill (AB 2635; Stats. 1984, ch. 1386; Food and Agricultural Code Sections 11501.1 and 14007), local and regional air pollution control districts were free to regulate the use of economic poisons (e.g., pesticides) concurrently with the CDFA and other state agencies (People ex rel. George Deukmejian v. County of Mendocino et al. (1984) 36 Cal.3d 476.) However, Section 11501.1(a) now states that the provisions of the Food and Agriculture Code relating to pest control operations and agricultural chemicals are of statewide concern and occupy the entire field of regulation:

"...Except as otherwise specifically provided in this code, no ordinance or regulation of local government, including, but not limited to, an action by a local governmental agency or department ..., may prohibit or in any way attempt to regulate any matter relating to the regulation, sale, transportation, or use of economic poisons..."

The legislation further declares that :

"It is the intent of the Legislature by this act to overturn the holding of [People v. County of Mendocino] and to reassert the Legislature's intention that matters relating to the economic poisons are of a statewide interest and concern and are to be administered on a statewide basis by the state unless specific exceptions are made in state legislation for local administration" (Stats. 1984, ch. 386, sec. 3)

It is clear that the ARB has not been preempted by the Bronzan bill. Section 11501.1(b) of the Food and Agricultural Code states: "...Neither this division nor Division 7 ... is a limitation on the authority of a state agency or department to enforce or administer any law that the agency or department is authorized or required to enforce or administer."

The ARB is authorized to regulate consumer products by Health and Safety Code Section 41712, which defines "consumer product" to include many types of consumer products that are registered under FIFRA (i.e., cleaning compounds; home, lawn, and garden products; disinfectants; sanitizers). Based on this very clear and explicit reference to many product categories which include FIFRA-registered products, we believe that Section 41712 contains an unambiguous expression of legislative intent that these products are subject to ARB regulation. If the Legislature had intended to preclude regulation of these products by the ARB, it could very easily have said so.

Since the ARB is authorized by Health and Safety Code 41712 to regulate the VOC content of FIFRA-registered products, and the CDFA also has the authority to regulate these products, it follows that the ARB has concurrent jurisdiction with the CDFA to regulate these products for air quality purposes. The Legislature can establish one statutory scheme for the general regulation of pesticides and another for the general regulation of air pollution, and both implementing agencies must share jurisdiction. (see Orange County APCD v. Public Utilities Comm. (1971, 4 C.3d 945).)

There are numerous instances where various public agencies exercise concurrent jurisdiction in regulatory situations where each agency is interested in a particular aspect of a given activity. In this case, the pesticide manufacturer would remain subject to CDFA regulations and orders regarding registered pesticide products while also being subject to any ARB regulations regarding the VOC content of products manufactured for sale or use in California. This is the only reasonable way to harmonize the separate regulatory schemes established by the Legislature.

B. MARKET-BASED INNOVATIVE PRODUCTS PROVISION

The market-based innovative products provision is an integral part of the consumer product regulation and provides flexibility from the traditional command and control approach. Because this is such an important provision in the rule and one that is a new approach for the ARB, below is a discussion of the provision in a question and answer format.

1. What is the innovative products provision?

The innovative products provision is an alternative means by which industry can comply with the consumer products regulation. An innovative product is defined as a product which cannot meet the standard for volatile organic compound content, but because of some feature of the product design, releases less volatile organic compounds than a product which meets the specified VOC limit in the regulation. A product determined to be innovative by the ARB would be in compliance with the regulation.

2. Why do we have the innovative products provision within the regulation?

The innovative products provision was included in the regulation to allow truly innovative products to be introduced into the marketplace. The provision is designed to provide industry some flexibility in complying with the consumer products regulation. While innovative products may have VOC contents greater than the allowable VOC content in the regulation, these products will result in less VOC emissions than from similar complying products. The provision is not a vehicle by which industry can circumvent the regulation or avoid reformulation. Furthermore, it is a provision that will encourage innovations and ultimately result in lower emissions.

3. How will the innovative products provision work?

A manufacturer will be required to obtain premarket approval from the ARB before marketing a non-complying product as innovative. The Executive Officer in giving approval will establish enforceable conditions including VOC content limit and test methods, as part of the approval. A manufacturer will be required to submit "clear and convincing" evidence to the ARB that the product is innovative and releases fewer VOC emissions than from a product formulated to comply with the standard. The ARB will have 30 days to determine if the application is complete and 90 days after the application is complete to evaluate the evidence and respond with a determination. Any changes to the product formulation would require reapproval of the product as an innovative product. An innovative product would still be subjected to the requirements of the registration program.

Clear and convincing evidence shall include physical, non-subjective test results which do not rely solely on modeling. The efficacy of the innovative product must be comparable to or better than the efficacy of a "representative" complying product. If the innovative product is a modification to an existing product, the efficacy of the innovative product must be comparable to the efficacy of the original existing product.

4. What are some issues with the innovative products provision?

Due to the very nature of innovation, it is difficult to predict all potential issues which may arise. It is possible that there will be some issues which have not been addressed in the provision. However, every effort has been made to insure that these unforeseen issues can be addressed. A special workshop was held on July 30, 1990, to discuss various issues regarding the innovative products provisions. The workshop was attended by representatives from ARB, EPA, and industry.

The chief potential problem, at least from the ARB and EPA standpoints, is the enforceability of the innovative products provision. This problem is addressed by requiring the applicant to provide test methods and enforceable criteria as a condition for Executive Officer approval.

Critical to the success of the innovative products provision will be the timely approval by ARB of an innovative product. Manufacturers are concerned about the loss of their competitive edge if the innovative products are not approved in a timely manner. This approval process may be affected by the additional review which EPA claims may be necessary for the regulation to be in the State Implementation Plan (SIP). We are working with EPA to meet EPA's concerns and resolve this issue.

The innovative products provision is designed to give flexibility to both the ARB and industry. While it is impossible to predict every potential situation, the provision is written in a manner which will allow ARB to deal with these situations. If we find during implementation that the provision is not working, we will recommend changes to the provision or, if necessary, its deletion.

C. SELL-THROUGH PERIOD FOR NON-COMPLYING PRODUCTS

1. Industry Concerns

The Chemical Specialties Manufacturers Association (CSMA) and other industry representatives have requested a three-year sell-through period instead of the one year provided in the regulation. They contend that the regulations will require extensive efforts to recall from warehouses and retail store shelves non-complying products for shipment outside the state, and that the extra VOC emissions from the increased transportation of the goods could offset the emission reductions gained from the removal of the non-complying products from the shelf. They also contend that the one-year sell-through period may be adequate for major companies and brand-name products, but small companies without major brand names would be most adversely affected because they lack the resources for engaging in product recalls and redistribution systems. Also, small retail businesses such as "mom and pop" stores have a lower product sales rate than large businesses, therefore, a longer sell-through period is needed. Finally, they claim that a three-year sell-through period would be consistent with the architectural coatings suggested control measure recently approved by the Board.

2. Lead Time

Staff believes a one-year sell-through period is appropriate for both large and small business.

Staff contacted various wholesale distributors located throughout the state that transport and deliver products to large and small retail businesses. The distributors carry goods and merchandise that are representative of the products listed in the regulation. Staff also contacted various associations that represent distributors and retailers.

For those products being sold in the Bay Area Air Quality Management District, the effective date of the standard is January 1, 1993. For the remainder of the state, the standard is effective January 1, 1994. Since the first workshop was held in September 1989, staff has had continuous dialogue with such major associations as the CSMA, Cosmetic, Toiletry and Fragrance Association, and Soap and Detergent Association. Based on these discussions, staff assumes that the associations have kept their members apprised of the impending standards and regulatory developments. Thus, if the regulation is adopted in October 1990, manufacturers will have at least a three year "lead" time to "phase-out" existing inventories, prepare reformulated complying products, and prepare for the recall of non-complying products. Staff believes the "lead time" should be more than adequate to minimize any extensive recall efforts.

3. Distribution System

Staff's recent contacts with wholesale and retail associations and wholesale distributors indicate that they are unaware of the regulatory developments and ongoing dialogue that are taking place between ARB and manufacturers. Staff recognizes that these groups are important links to

the consumer. Currently, staff is making an effort to notify wholesale distributors and retail associations of regulatory developments. By keeping these groups apprised of the situation, they will be better prepared to accommodate future changes in inventories and may provide important feedback during the transition from non-complying products to complying products.

Staff recognizes that it is both impractical and not good "business sense" for manufacturers or distributors to expend extra resources to recall non-complying products from retail shelves. The most appropriate way is to use existing delivery routes and lines of communications between the distributor and retailer. Delivery personnel know their retail customers and place of business and should have no trouble receiving recalled products while at the same time delivering other normally stocked products, provided that arrangements are made in advance. Distributors have had previous experience in recalling specific products. This situation is not expected to be any different, except that the distributors will have the knowledge of what is to occur much further in advance. Therefore, little or no increase in emissions is expected to occur.

To remain viable, small manufacturers keep abreast of the current progress and future outlook of the market. As indicated above, small manufacturers are aware of the impending regulations and have approximately a three-year "lead" time for determining which non-complying products will need to be "phased out" and which complying products might be available. Since distributors will be aware of how the regulations may affect their inventories, both the distributor and small manufacturer may make a fair assessment of product sales and may plan for an eventual "phase-out" (or sell-out) of non-complying products by the end of the sell-through period, thereby minimizing the need for a large recall or redistribution.

4. Small and Large Retail Businesses

Staff believes a one-year sell-through period for small retail businesses such as "mom and pop" stores is adequate. Lacking the advertising, promotional, storage, and shelf space capabilities as the large businesses, small businesses use other marketing strategies. They select products that have high "turnover" rates because they must make a quick profit to remain viable. They select products that are popular with consumers for various reasons. They periodically check their shelves to determine which products are selling or not selling and change their orders with their distributors according to their needs.

Since there is a direct relationship between the distributor's profit and the retail business's profits, in some cases, the distributor checks the inventory and stocks the shelves for the retailer directly. In the case of small, family-owned businesses, this saves time for more personal duties such as servicing the customer. It is thus up to the distributor to determine which products are more profitable and where they may be placed in the store for the greatest exposure. Also, some distributors have a guarantee on almost 100% of their products such 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 an extra incentive for the

distributor to help sell the product as well as help provide flexibility for the retailer, especially for small businesses.

Large businesses deal in very high volume sales and have "turnover" rates of several weeks to several months. They often receive special incentives or deals from manufacturers that allow products to be sold more rapidly than normal. At times, the large businesses provide special promotions such as prizes or vacations with manufacturer incentives to further increase sales. Large chains and franchises also have large storage and transportation facilities to move merchandise quickly and efficiently.

5. Recommended Sell-Through Time

The staff has concluded that a three-year sell-through period is inappropriate for the consumer product categories being considered in this regulation. Consumers use these types of products everyday. Since the products are being used each day, the demand for them is high and the purchases are large. Consequently, the "turnover" is high and length of time on the store shelf is low.

A comparison is made to the three-year sell-through provisions in the Board approved architectural coatings suggested control measure (SCM). In the SCM, the performance standards are effective about six months from the date of the adoption of the regulation. This provides little time for industry to adjust itself. Therefore, the Board felt additional time was needed; thus, the three-year sell-through time. This is not the situation with the proposed consumer product regulation where the proposed standards will not take effect for about three years.

D. CONSUMER EDUCATION

As previously noted in the Consumer Products Control Plan, there is a need for an ongoing educational program which will maximize the emission reductions by increasing public awareness of air pollution issues related to consumer products, and of how individual choices and actions relating to these products impact air quality. Such a program can also motivate consumers to choose lower pollution products or practices. Specifically, such a program can address topics such as less polluting alternative product forms to reduce pollution; lifestyle impacts such as product availability, cost, and performance; and use of new complying products. The latter is particularly important, since failure to use new products according to instructions may result in decreased product efficacy and also increased emissions due to increased usage amount per product application.

To initiate the consumer education program, ARB staff have begun work on the development of an overall consumer education program. As a first step, we are currently developing two educational brochures for release this fall.

VII.

TECHNICAL ISSUES

In the process of developing the regulation, ARB staff tried to be responsive to legitimate concerns raised by industry representatives. As a result, staff's proposal has evolved with time. The following are examples of changes made by ARB staff; (1) the number of regulated products has been reduced from 21 to 16 categories to reflect the need for additional information for some of the categories, (2) the VOC limits on 10 of the 16 categories have been adjusted from the initial proposed levels to better reflect current technology, (3) the initial general aerosol products provision was deleted as it was found to not be a workable approach, (4) the standards for seven out of the 16 product categories were subdivided into form-specific standards to reflect each form's unique characteristics, (5) the implementation date for FIFRA-registered products was extended one year to account for time needed to re-registration as a result of reformulating, and (6) general streamlining of the registration requirement to minimize the efforts needed by industry to comply and still ensure that required data is submitted to the Board.

A. ISSUES PERTAINING TO THE VOC STANDARDS

1. Technology-Forcing Standards

For four product categories (engine degreasers, hairspray, nail polish remover, and single phase aerosol air fresheners) staff are proposing to have future effective standards. These standards are considered to be "technology-forcing." A technology-forcing standard is one that cannot be met now by the majority of manufacturers but which has a future effective date, thus forcing manufacturers to develop new technology to meet the lower standard by its effective date. We believe that the technology-forcing standards specified in the regulation can be met by manufacturers in the time frame provided, and are technologically and commercially feasible. Technology-forcing standards have been important tools to encourage industry toward lower VOC products, particularly with coating sources. Although technology-forcing standards have had some success in the architectural

coating field, automotive, and gasoline marketing fields, they can be problematic from both technical and regulatory aspects. All parties must recognize that, even with good faith efforts the future standards may not be met, and changes to the regulation may be necessary. Manufacturers may fail to develop the new technology, and relaxation of regulations or extension of implementation dates already adopted may constitute an impermissible relaxation of the State Implementation Plan (SIP).

To maximize the emission reductions from consumer products, we believe that technology-forcing standards are necessary. However, staff are committed to closely follow improvements in technology and if necessary propose amendments to the rule at a future date if, in spite of diligent efforts on the part of industry, the technology is not available to meet the future effective standards. The staff will take appropriate steps to ensure that manufacturers are not subject to federal enforcement if technology-forcing standards are modified at a future date.

a. Hairspray

Hairspray manufacturers have objected to a future effective standard for hairsprays that is less than 70% VOC. The 1993 80% VOC standard for aerosol and pump hairsprays has been proposed by industry provided the innovative product provision is included in the regulation. The Chemical Specialty Manufacturers Association (CSMA) and the Cosmetic, Toiletries, and Fragrance Association (CTFA) have proposed a future effective standard of 70% for aerosol hairsprays with a compliance date of January 1, 1999 while maintaining the 80% limit for pump hairsprays. According to industry associations, compliance with the 80% standard is technically possible; however, to achieve the 80% standard considerable time, money, and manpower will need to be expended to combat problems with formulation compatibility, consumer acceptance and efficacy. We have been informed that industry believes that the 70% standard forces technology beyond the foreseeable future, and would require the development of a new polymer and that any lower VOC limit would not be feasible. According to industry, the development of a new polymer would take up to seven years.

Staff are proposing a 55% VOC future effective standard for hairsprays, effective January 1, 1998. Staff believe it is necessary to have this future standard and that it is feasible. Hairsprays is the largest single consumer product category in terms of emissions at 46 tons per day. It is necessary to maximize the emission reductions from this product if we are to achieve our goal set forth in the Consumer Product Control Plan to achieve a 50% reduction in the emissions from consumer products. Staff recognizes that the 55% standard may be forcing technology, however, to achieve the needed emission reductions it is necessary to use the technology-forcing standard to encourage manufacturers to develop new technologies.

Based on information obtained to date, staff believe this standard will be achievable and that the technology is already being developed even to the extent that products are currently being sold that can comply with the future limit. Information supplied to ARB in the VOC survey indicates that there are at least 6 aerosol hairsprays and 24 pump hairsprays in the market

that can comply with the 55% standard. Notably, a hairspray at a 40% VOC level, well below the proposed standard has been recently introduced to the California market. This product utilizes a water based resin system and dimethyl ether propellant. Also, in the May 1990 issue of Aerosol Age[4], an industry trade journal, several hairspray formulations were listed with VOC contents ranging from 32% to 70% VOC.

b. Engine Degreasers

A future effective date of January 1, 1996 with an associated standard of 50 percent VOC is being proposed for engine degreasers. Based on the VOC survey, there are 3 products currently available that can meet the future effective standard, however, these products represent less than 2 percent of the market. This is a high emissions category at 4 tons per day and to achieve additional emission reductions it is necessary to have a future effective date. Manufacturers would have until 1996, almost 6 years, to develop and improve the technology necessary to market a 50 percent VOC engine degreaser. We believe that this time period is adequate to develop complying products.

c. Single Phase Aerosol Air Fresheners

A future effective date of January 1, 1996 and an associated standard of 30 percent VOC is proposed for single phase aerosol air fresheners. The single phase aerosol air fresheners currently average 96 percent VOC content. Industry agreed that this type of air freshener could be reformulated to meet a limit of 70 percent VOC content. This is compared to the staff proposed standard of 30 percent VOC content for the other aerosol air fresheners (Dual-Phase) effective January 1, 1993. We believe that, without having the VOC limit the same for aerosol air fresheners; we may inadvertently encourage manufacturers to go to single phase technology, rather than reformulating their dual-phase aerosol air fresheners. We believe that it is possible to formulate a compliant single phase product or to develop a single phase aerosol air freshener product that could qualify as an innovative product.

d. Nail Polish Remover

Little opposition has been raised regarding both the initial January 1, 1994 VOC limit of 85% or the future effective standard of 75% VOC by January 1, 1996 for nail polish removers. According to the ARB VOC survey there are eleven products that can comply at 85 percent, accounting for 13 percent of the market. There is one product that can meet the future effective standard of 75 percent VOC and staff are aware of one nail polish remover with a patent pending that can also meet 75 Percent. Staff believed it would be reasonable to allow additional time for other manufacturers to develop the technology that would allow formulation of a 75 percent VOC nail polish remover.

2. Furniture Maintenance Products

A request was made by one company to raise the 7% VOC standard for pump and liquid furniture maintenance products because for certain liquid products that claim to moisturize and preserve wood furniture a higher solvent content is necessary to allow penetration of the wood surface. Staff have found that other products on the market contain oils that soak into the wood that can meet the 7% VOC standard. These products also claim to moisturize and protect wood surfaces. In addition, the ARB VOC survey does not support this request. According to the survey, liquid furniture maintenance products, which according to an industry contact are primarily furniture oils, have a sales-weighted average VOC content of 6% with 15 of the 22 products currently on the market complying.

3. Bathroom and Tile Cleaners

CSMA presented some concerns over the 5% VOC standard for bathroom and tile cleaners and requested an 8% VOC standard for this product and 14% for FIFRA registered bath and tile cleaners and for institutional bath and tile cleaners. According to CSMA, a 5% VOC standard would eliminate the aerosol form of this product and they also claimed that most of the solvents in these products are rinsed down the drain and therefore does not contribute to atmospheric VOC emissions.

The ARB survey does not support CSMA's proposal. According to the ARB consumer products survey, the sales-weighted average VOC contents of liquid and pump bathroom and tile cleaners are 2.0% and 0.6%, respectively. Therefore, it does not appear that the majority of these products would have to be reformulated to meet the 5% standard. For aerosol bathroom and tile cleaners, the survey indicates the following: (1) an average VOC content of 6%, just above the standard; (2) there would be about 99% compliance with a 6% limit; and (3) there are 5 aerosol products that currently meet the 5% standard. It does not seem likely that the 5% standard would result in a ban of the aerosol product form. Reformulation of some products would be necessary. However, emission reductions cannot be achieved without reformulation. Also, according to the ARB consumer products survey, some FIFRA registered bathroom and tile cleaners/disinfectants already meet the 5% standard. In addition, FIFRA products are given an extra year to comply with the regulation to accommodate the registration process at the Federal and State levels.

Staff also question the need for a higher standard for institutional bathroom and tile cleaners. Staff has not been provided with any information indicating the need for a higher standard for these bathroom and tile cleaners nor were any such cleaners reported in the VOC survey.

Staff has also not been provided with any information indicating that emissions from the use of bathroom and tile cleaners are reduced due to solvents that are washed down the drain. Information has been provided indicating that ethanol emissions from liquid laundry detergents and hand dishwashing liquid are reduced due to biodegradation in, for instance, in

publicly owned water treatment works. However, the potential for biodegradation is dependent on the solvent in question as well as the amount of exposure to the atmosphere during use or storage. The solvents in bathroom and tile cleaners are not primarily ethanol. Also, the use of these cleaners provides greater exposure to the atmosphere.

4. General Purpose Cleaners

CSMA has raised concerns over the 10% VOC standard for general purpose cleaners. According to CSMA, the 10% standard for general-purpose cleaners allows for products of sufficient efficacy for common household use but a 15% standard is needed for products sold exclusively to institutional consumers due to the more difficult-to-clean soils encountered.

The ARB consumer product survey does not support the request for a higher standard for institutional general purpose cleaners. According to the survey, at least 36 products were reported as general industrial cleaners that could comply with the 10% standard. This indicates that several industrial cleaners are currently being marketed that can already comply with the standard.

5. Glass Cleaners

CSMA has requested a separate limit of 20% for glass cleaners for automotive windows and institutional use. The basis for this request is that this will allow efficacious cleaning of these highly soiled, difficult to clean glass surfaces. The argument was also presented that if consumers do not have access to the higher-VOC product, they will use more of the lower-VOC product, therefore generating more emissions than if the higher-VOC product had been used. However, the VOC survey does not support the need for a special VOC limit for institutional/automotive window cleaner. According to the survey, 26 out of the 59 products reported under the liquid glass cleaner category could comply with the standard, representing 73% of the market for this form.

B. PARA-DICHLOROBENZENE EXEMPTION

An exemption has been provided for air fresheners containing at least 98% para-dichlorobenzene (PDCB). This exemption was provided for closet fresheners/moth repellents and toilet bowl deodorants. These products are composed almost entirely of PDCB with a small amount of fragrance sometimes added. According to the primary supplier of these products to California, they cannot be reformulated to meet the VOC limits in the regulation since almost the entire product is PDCB, a VOC.

Staff have raised concerns over the health affects of para-dichlorobenzene used in air fresheners. PDCB is classified by EPA as a class "C" carcinogen, a possible carcinogen. PDCB is also listed by the State of California under Proposition 65 as a chemical "known to the State to cause cancer" and is a Group IIB compound (substances not yet under review) on the ARB's toxic air contaminant identification list. The

evidence for PDCB's status as a carcinogen appears to be primarily due to animal studies by the National Toxicology Program [5]. The NTP study found that PDCB was carcinogenic in both rats and mice when administered orally. However, no evidence of carcinogenicity via inhalation is available. The only available inhalation study found no evidence of carcinogenicity in rats and mice. However, the results were found not to be valid. ("Toxicological Profile for 1,4-Dichlorobenzene", U.S. Public Health Service). Staff are proposing to exempt PDCB air fresheners but will monitor the use of PDCB and continue to research the health impacts of PDCB. If appropriate, the control of PDCB will be addressed through the review process required by State law for the identification and control of toxic air contaminants (Health and Safety Code Section 39650 et. seq.)

C. DUAL-PURPOSE AEROSOL AIR FRESHENER/SPRAY DISINFECTANTS

Industry representatives have questioned the need for regulating dual-purpose aerosol air freshener/disinfectants. They have stated that these products provide an invaluable health benefit to the public and should therefore be exempted from the regulation. Staff believes that emissions from this product category can be reduced through the use of alternative products, methods, and reformulation or through marketing and selling the product only as an aerosol spray hard surface disinfectant. To justify the standard for this product category, ARB staff have prepared the following analysis. Because of the many issues involved, staff have presented their findings in a question-and-answer format to address the concerns raised.

1. Why are we proposing to regulate the VOC content from dual-purpose aerosol air freshener/disinfectants?

The regulation will affect only dual-purpose aerosol air freshener/disinfectants, which staff defines to be pressurized spray disinfectants which also claim to freshen or deodorize air. Note that products which are sold and advertised only as hard surface aerosol spray disinfectants would not be affected by the proposed standard. In addition, liquid and pump spray disinfectants that make deodorizing claims would also not be affected by the standard.

Dual-purpose aerosol air freshener/disinfectants have a sales-weighted average VOC level of 80% by weight. For comparison, the air freshener category, excluding dual-purpose disinfectants, has an average VOC content of 25% by weight. Since the dual-purpose aerosol air freshener/disinfectants compete directly with other air fresheners, ARB staff believe that the standards for all similar air fresheners should be roughly equivalent.

Dual-purpose aerosol air freshener/spray disinfectants which are sold mainly in the retail (consumer) market may be misused as air fresheners. ARB staff's shelf survey revealed that these air freshener/disinfectants are very often sold along with other air fresheners instead of in the disinfectant sections of retail outlets. ARB staff believe that many consumers believe they are "disinfecting" or "purifying" the air when they

spray these products into the center of a room. It is important to note that, when using these products as a hard surface disinfectant, the user must apply the liquid to the hard surface to be disinfected according to the label directions. Spraying the product into the air does not provide disinfecting benefits, only an air freshening benefit.

ARB staff estimates the VOC emissions from this category are approximately 4.3 T/D with one product comprising approximately 90 percent of the total emissions. Current sales-weighted average VOC content for these products is 80% by weight. A standard of 60% VOC by weight is proposed which would achieve a 25% reduction in these emissions (1.1 T/D).

2. How would the proposed standard affect the efficacy of the product, especially in regard to the transmission of AIDS and other viruses?

Given currently available data, ARB staff do not believe that the proposed standard will adversely affect the efficacy of disinfectants against the viruses that cause AIDS and other diseases. Staff have identified numerous alternative disinfectants that are not claimed to deodorize air but are registered with EPA as hospital disinfectants that will meet guidelines issued by the U.S. Department of Health and Human Services for the prevention of transmission of the AIDS and hepatitis B viruses. The human immunodeficiency virus (HIV) which causes AIDS is among the easiest of viruses to kill on environmental surfaces. Probably of greater concern to health-care officials is the transmission of the hepatitis B virus (HBV), which carries a greater probability of transmission within the health-care setting. At this time, no case of AIDS transmission through contact with environmental surfaces has ever been documented.

The U.S. Department of Health and Human Services (Centers for Disease Control or CDC) recently published their guidelines for preventing the transmission of these two viruses [6]. This document currently serves as the basis for operational guidelines used by hospital and dental associations, the Red Cross, and other health-care agencies. In these guidelines, environmental surfaces (e.g., counter-tops, sinks, toilet seats) generally require only low- or intermediate-level disinfection, or just plain detergent/water cleaning depending on the degree of disinfection required and whether any soil (e.g., blood) is present.

In those cases where there are significant amounts of blood or blood-contaminated fluid, the CDC guideline specifies the use of an intermediate-level disinfectant after precleaning of the visible material: that is, use of either a hospital disinfectant with tuberculocidal (M. tuberculosis) activity or a solution containing at least 500 ppm free available chlorine (approximately 1/4 cup common household bleach per gallon of tap water). Hospital disinfectants are products which have proven activity against S. choleraesuis, S. aureas, and P. aeruginosa. Intermediate-level disinfection is also recommended by the CDC for dental settings, since saliva containing blood may be present on the environmental surfaces.

Products that perform intermediate-level disinfection are those with tuberculocidal claims. As discussed in the TSD, there are many such

disinfectants with tuberculocidal claims. Staff has identified at least 85 EPA-registered tuberculocidal disinfectants listed in the National Pesticides Information Retrieval System (NPIRS). In addition, many of these products also have activity against I. interdigitale, the pathogenic fungus that causes "athletes foot." Hospital disinfectants with activity against M. tuberculosis and I. interdigitale are tacitly accepted as an effective disinfectant in the hospital environment for all pathogenic microorganisms except protozoa and viruses [7]. In the case of viruses, activity must be documented on a case-by-case basis. Staff has identified at least 101 EPA-registered products that claim activity against the HIV virus (AIDS). Note that these products do not necessarily claim tuberculocidal activity, which indicates the relative ease at which the HIV virus is inactivated. Also note that a 500 ppm free chlorine bleach solution (5% household bleach solution diluted 1 to 100 parts) will also satisfy these requirements for an intermediate-level disinfectant.

3. Why was 60% by weight VOC chosen as the standard for these products?

ARB staff's analysis of current disinfectant technology indicated that 60% by weight VOC is adequate for products to meet hospital disinfection requirements. Staff has determined that alternative non-air freshener products are available which are EPA-registered hospital disinfectants. Moreover, these products can meet guidelines issued by the U.S. Department of Health and Human Services for the use of disinfectants in health-care and dental settings to help prevent the transmission of the AIDS and hepatitis B viruses. Because of the way these products may be used, dual-purpose aerosol air freshener/disinfectants may compete directly with dual-phase aerosol air fresheners. Both products provide similar air freshening qualities. Therefore, ARB staff believes that the standards for these air freshener products should likewise be similar. The current standard for dual-phase aerosol air fresheners is 30% VOC by weight. Rather than setting the standard for dual-purpose aerosol air freshener/disinfectants at 30%, ARB staff proposed a standard of 60% to reflect the need for additional VOC.

Dual-purpose aerosol air freshener/spray disinfectants, all of which are currently based on ethanol, contain propellants whose primary purpose is to deliver the ethanol and a small amount of other active ingredients in a convenient manner for the consumer. The difference between these products and a liquid disinfectant which has the same disinfectant classification then becomes a matter of convenience to the consumer. The standard was set at the minimum amount of ethanol required to inactivate the five prototype organisms required for the hospital disinfectant classification with tuberculocidal activity.

Eleven out of the fifteen tuberculocidal aerosol spray disinfectants registered with EPA have ethanol levels below 60%. In addition, nine out of thirteen spray disinfectants registered with claims against the AIDS virus have ethanol levels below 60%.

Most hospitals and dental offices in California use commercially-available liquid disinfectants for three reasons: (1) environmental and health concerns regarding the use of aerosol products in the vicinity of

sensitive patients, (2) the theft of aerosol products from hospital supply as a result of their convenient sizes, and (3) liquids bought in bulk are much more economical than prepackaged aerosol products.

Guidelines issued by the U.S. Department of Health and Human Services for dental offices do not recommend the use of alcohol-based products for hard surface disinfection in dental offices because of the lack of sufficient contact time caused by the rapid evaporation of alcohol [8]. Most aerosol air freshener/spray disinfectants are currently based on ethanol.

Given the currently available market and efficacy data, ARB staff believes that reducing the VOC content in dual-purpose aerosol air freshener/ spray disinfectants will allow for significant emission reductions while satisfying the consumers' basic market demand for air freshening aerosol products that provide anti-microbial protection. Again, it should be noted that the standard would not apply to products sold or advertised solely as a hard surface aerosol disinfectant. Therefore, there will still be efficacious disinfectants available to the consumer.

4. What about safety issues concerning the use of liquid disinfectant/air fresheners in the household?

Industry representatives contend that, as an alternative to dual-purpose aerosol air freshener/disinfectant spray products, liquid disinfectants present a safety concern from the potential accidental swallowing by children. Staff believes that properly-designed packaging will eliminate or significantly reduce this concern. ARB staff has identified at least 8 EPA-registered liquid/pump spray disinfectants which employ child-resistant packaging. Staff believes that the potential for accidental swallowing cannot be completely eliminated from either the aerosol spray or liquid packaging. However, with proper-designed packaging, this concern can be minimized.

5. Is a 500 ppm bleach solution corrosive in the household environment?

Because of its oxidizing properties, a 500 ppm bleach solution is considered by staff to be an inexpensive but effective disinfectant for household and institutional uses. A bleach solution at this concentration (approximately 1/4 cup household bleach in a gallon of water) is recommended by the U.S. Department of Health and Human Services for use in health-care and dental settings for the prevention of the transmission of the AIDS and hepatitis B viruses. A 500 ppm bleach solution is generally not considered to be corrosive in the household environment. For comparison, staff estimates that a typical load of laundry with bleach contains about 3700 ppm of bleach. In addition, the 5% common household bleach solution as sold in the package is rated as non-corrosive under Department of Transportation (DOT) regulations for transport.

6. How can an aerosol air freshener/disinfectant manufacturer comply with this standard?

There are essentially four ways for a manufacturer to comply with the 60% VOC standard: (1) sell, advertise and market the product only as a hard surface disinfectant and not as an air\$reshener, in which case the product would not be subject to the regulation, (2) reformulate the product to reduce the VOC content and use an exempt VOC or non-VOC propellant, (3) reformulate the product to reduce the VOC content and use it in a pump, and (4) redesign product into innovative package such that it emits fewer emissions. Of these, options 1, 2 and 3 are believed to be the most cost-effective and easiest options to implement. Option 1 requires only a labeling and marketing change.

REFERENCES

1. California Air Resources Board, The Effects of Oxides of Nitrogen on California Air Quality, March 1990.
2. California Air Resources Board, Emission Inventory 1987, March 1990.
3. The Federal Insecticide, Fungicide, and Rodenticide Act, As Amended, 7 U.S.C. 136-136y.
4. Dorman, S. and San Giovanni M., "Hair Care in the 1990's," Aerosol Age, May 1990. Volume 35, No. 5, May 1990.
5. Life Systems, Inc., "Toxicological Profile for 1,4-Dichlorobenzene," prepared under contract for Agency for Toxic Substances and Disease Registry, January 1989.
6. U.S. Department of Health and Human Services (Centers for Disease Control), Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public Safety Workers, February 1989.
7. Prince, Herbert N., "Disinfectant Activity Against Bacteria and Viruses: A Hospital Guide," Particulate and Microbial Control, March/April 1983.
8. U.S. Department of Health and Human Services, Practical Infection Control in the Dental Office, December 1989.

APPENDIX

Proposed Consumer Product Regulation

**PROPOSED
REGULATION FOR REDUCING VOLATILE ORGANIC COMPOUND
EMISSIONS FROM CONSUMER PRODUCTS**

Adopt new Article 2, Consumer Products, Sections 94507-94516, Title 17, California Code of Regulations, to read as follows:

SUBCHAPTER 8.5 CONSUMER PRODUCTS

Article 2. Consumer Products

94507. Applicability

Except as provided in Section 94510, this article shall apply to any person who sells, supplies, offers for sale, or manufactures consumer products in the state of California.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94508. Definitions

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

- (1) Aerosol Food Product means any food product dispensed from an aerosol container.
- (2) Aerosol Product means a pressurized spray system that dispenses product ingredients by means of a propellant or mechanically induced force.
- (3) Air Freshener means any consumer product including, but not limited to, sprays, wicks, powders, and crystals, designed for the purpose of masking odors, providing a scent, or deodorizing. This category includes disinfectant aerosol spray products that are sold or advertised for dual use as air fresheners and hard surface disinfectants. "Air freshener" does not include products that are used on the human body, or products that function primarily as cleaning products as indicated on a product label or advertisement.

- (4) Antiperspirant means any product including, but not limited to, aerosols; roll-ons, sticks, pumps, pads, creams, and squeeze-bottles, that is intended by the manufacturer to be used to reduce perspiration in the human axilla by at least 20 percent in at least 50 percent of a target population.
- (5) Architectural Coating means coatings applied to stationary structures and their appurtenances, to mobile homes, to pavements, or to curbs.
- (6) Automotive Bug and Tar Remover means a specialty cleaning product used primarily to remove materials such as bugs, road tars, and oil which have adhered to a motor vehicle's body.
- (7) Automotive Chrome Polish means a specialty maintenance product used to clean and polish a motor vehicle's chrome components.
- (8) Automotive Leather/Vinyl Cleaner means a specialty cleaning product used to clean the leather or vinyl components of a motor vehicles's interior.
- (9) Automotive Tire Dressing means a specialty product designed to provide lustre and/or protect a motor vehicle tire.
- (10) Automotive Wheel Cleaner means a specialty product used to remove materials such as dirt and grime from a motor vehicle's wheels.
- (11) Automotive Windshield Washer Fluid means any liquid designed for use in a motor vehicle windshield washer fluid system for the purpose of cleaning, washing, or wetting the windshield(s). Automotive windshield washer fluid does not include any fluid which is placed in a new motor vehicle at the time the vehicle is manufactured.
- (12) Bathroom and Tile Cleaner means a specialty cleaner formulated specifically for bathroom and/or tile cleaning.
- (13) Brake-Cleaner means a specialty cleaning product designed to remove oil, grease, or brake fluid from motor vehicle brakes without leaving a residue.
- (14) Carburetor - Choke Cleaner means a product designed to remove dirt and other contaminants from a carburetor and its components.
- (15) Charcoal Lighter fluid means any combustible organic liquid used to ignite charcoal.
- (16) Colorant means any pigment or coloring material used in a consumer product for an aesthetic effect, or to dramatize an ingredient.

- (17) Consumer Product means a chemically formulated product used by household and institutional consumers including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; and automotive specialty products but do not include paint, furniture coatings, or architectural coatings.
- (18) Deodorant means any product including, but not limited to, aerosols, roll-ons, sticks, pumps, pads, creams, and squeeze-bottles, that is intended by the manufacturer to be used to minimize odor in the human axilla by retarding the growth of bacteria which cause the decomposition of perspiration.
- (19) Disinfectant means any product intended to destroy or irreversibly inactivate infectious or other undesirable bacteria, pathogenic fungi, or viruses on surfaces or inanimate objects and whose label is registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, 7 U.S.C. 136, et seq.)
- (20) Distributor means any person who transports or stores or causes the transportation or storage of consumer products at any point between any consumer product manufacturing plant and any retail outlet or whole-sale-purchaser-consumer's facilities.
- (21) Double Phase Aerosol Air Freshener means an aerosol air freshener with the liquid contents in two or more distinct phases and requiring that the product container be shaken before use to mix the phases, producing an emulsion.
- (22) Dusting Aid means a spray product designed to assist in removing dust and other residuals from finished wood surfaces, including floors, and which after drying leave behind no film or other residuals on such surfaces.
- (23) Engine Degreaser means a specialty cleaning product designed to remove grease, grime, oil and other contaminants from the external surfaces of engines and other mechanical parts.
- (24) Executive Officer means the Executive Officer of the Air Resources Board, or his or her delegate.
- (25) Fabric Protectant means a product specially designed to be applied to fabric substrates to protect the surface from soiling from dirt and other impurities.
- (26) Flexible Flooring Material means asphalt, cork, linoleum, no-wax, rubber, seamless vinyl and vinyl composite flooring.

- (27) Floor Polish (Wax) means waxes, polishes, finish restorers or any other products for the purpose of polishing, protecting or enhancing the surfaces of floors and excluding products only for the purpose of cleaning floors, products formulated for unfinished wood floors, and coatings subject to architectural coatings rules.
- (28) Food means (1) articles used for food or drink for man or other animals, (2) chewing gum, and (3) articles used for components of any such article.
- (29) Fragrance means a substance or complex mixture of aroma chemicals, natural essential oils, and other functional components with a combined vapor pressure not in excess of 2 mmHg at 20 C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor.
- (30) Furniture Maintenance Product means a wax, polish, conditioner, moisturizer or any other product designed for the purpose of polishing, protecting or enhancing finished wood surfaces other than floors and excludes products only for the purpose of cleaning. Furniture maintenance product does not include dusting sprays.
- (31) Furniture Coating means any paint applied to room furnishings which include cabinets (kitchen, bath and vanity), tables, chairs, beds, and sofas.
- (32) General Purpose Cleaner means a formulation designed for general all-purpose cleaning, in contrast to specialty cleaning products made to clean in certain situations.
- (33) Glass Cleaner means a specialty cleaning product designed primarily for cleaning surfaces made of glass.
- (34) Hairspray means a consumer product designed primarily for the purpose of dispensing droplets of a resin on and into a hair coiffure which will impart sufficient rigidity to the coiffure to establish or retain the style for a period of time.
- (35) Hair Mousse means a hairstyling foam which facilitates styling of a coiffure and provides limited holding power.
- (36) Hair Styling Gel means a high viscosity, often gelatinous, product that contains a resin and is applied to hair to aid in styling and sculpting of the hair coiffure.
- (37) Household Adhesive means any substance that is used to bond one surface to another by attachment.

- (38) Household Consumer means any person who uses consumer products in his or her daily activities including, but not limited to, personal care; cooking; cleaning; laundering; or home and auto maintenance.
- (39) Household Pesticide means any pesticide product distributed to the retail market.
- (40) Household Sealant and Caulking Compound means any product designed to fill in cracks, close or secure an object, or to prevent seepage of moisture or air.
- (41) Industrial Spray Buff means a liquid or aerosol product mixture of polymer, resins, waxes and solvents that is used in conjunction with a floor machine and special pad for restoring worn floor polishes.
- (42) Insect Repellent means a compound or combination of compounds which are applied to human skin, hair or clothing in order to prevent contact with or otherwise repel biting insects and pests.
- (43) Institutional Consumer means an organization, business, or establishment engaged in either the nonprofit promotion of a particular public, educational, or charitable cause, or the transfer of commodities or services for profit. Institutional consumer includes but is not limited to government agencies, schools, hospitals, sanitariums, prisons, restaurants, stores, automobile service centers, health clubs, theatres, or transportation companies. This does not include private residences.
- (44) Laundry Detergent means a product containing a surfactant and other ingredients, formulated to clean and care for fabric articles.
- (45) Laundry Prewash means a specialty product that is applied to a fabric prior to laundering and that supplements and contributes to the effectiveness of laundry detergents and/or provides specialized performance.
- (46) Laundry Starch Product means a product that is applied to a fabric after laundering to impart and prolong a crisp, fresh look and retain the shape of the garment and that may act as an aid to make ironing of the fabric easier. Such products include, but are not limited to, fabric finish, sizing, and starch.
- (47) Lubricant means any liquid or solid that reduces friction, heat, and wear when applied as a surface coating to a moving part.

- (48) Manufacturer means any person or business entity that produces, packages, repackages, or relabels a consumer product for sale in California.
- (49) Nail Polish Remover means a product primarily used to remove nail polish and coatings from fingernails or toenails.
- (50) Nail Polish means any clear or colored coating applied to the fingernails or toenails and includes lacquers, enamels, acrylics, base coats and top coats.
- (51) Nonresilient Flooring means flooring of a mineral content which is not flexible. Nonresilient flooring includes terrazzo, marble, slate, brick, stone, ceramic tile and concrete.
- (52) Oven Cleaner means any specialty cleaning product designed to clean and to remove dried food deposits from oven walls.
- (53) Paint means any pigmented liquid, liquefiable, or mastic composition designed for application to a substrate in a thin layer which is converted to an opaque solid film after application and is used for protection, decoration or identification, or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics, etc.
- (54) Paint Stripper means any product formulated to strip or remove paint from a substrate without markedly affecting the substrate itself.
- (55) Percent-By-Weight means the total weight of VOC except those VOCs exempted under Section 94510, expressed as a percentage of the total net weight of the product exclusive of the container or package as calculated according to the following equation:

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

where,

A = net weight of unit (excluding container and packaging)

B = weight of VOCs, as defined in Section 94508, per unit

C = weight of VOCs, exempted under Section 94510, per unit

- (56) Pesticide means and includes any substrates or mixture of substances labeled, designed, or intended for use in preventing, destroying, repelling or mitigating any pest, or any substance or mixture of substances labeled, designed, or intended for use as a defoliant, desiccant, or plant regulator,; provided that the term "pesticide" will not include any substance or mixture of substances which the Environmental Protection Agency does not consider to be a pesticide.

- (57) Propellant means a liquified or compressed gas that is used in whole or in part to expel from the same self-pressurized container or from a separate container a liquid or solid material different from the propellant.
- (58) Pump Spray Dispenser means a non-pressurized dispenser that dispenses product ingredients by means of a mechanical force induced by the hand of the operator.
- (59) Retailer means any person who owns, leases, operates, controls, or supervises a retail outlet.
- (60) Retail Outlet means any establishment at which consumer products are sold, supplied, or offered for sale.
- (61) Rug Deodorizer means any product designed to mask odors, provide a specific desired scent, or to deodorize carpets, rugs, or other floor coverings. This does not include products that function as cleaning products.
- (62) Shaving Cream means an aerosol product which dispenses a foam lather intended to be used with a blade or cartridge razor, or other wet-shaving system, in the removal of facial or other bodily hair.
- (63) Shaving Gel means an aerosol product which dispenses a gel capable of being formed into a foam lather intended to be used with a blade or cartridge razor, or other wet-shaving system, in the removal of facial or other bodily hair.
- (64) Single Phase Aerosol Air Freshener means an aerosol air freshener with the liquid contents in a single homogeneous phase and which does not require that the product container be shaken before use.
- (65) Volatile Organic Compound (VOC) means any compound containing at least one atom of carbon, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, or carbonates, ammonium carbonate, 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (HCFC-22), trifluoromethane (HFC-23), trichlorotrifluoroethane (CFC-113), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), dichlorotrifluoroethane (HCFC-123), tetrafluoroethane (HFC-134a), dichlorofluoroethane (HCFC-141b), and chlorodifluoroethane (HCFC-142b).
- (66) Water Proofing Products means a product applied to fabric to reduce absorption of water.
- (67) Wood Floor Wax means wax-based products for use solely on wood floors.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94509. Standards for Consumer Products

- (a) Except as provided in Sections 94510, 94511, and 94514, no person shall sell, supply, offer for sale, or manufacture for sale in California any consumer product which, at the time of sale or manufacture, contains volatile organic compounds in excess of the limits specified in the following Table of Standards after the specified effective dates.

Table of Standards

Percent Volatile Organic Compounds by Weight

<u>Product Category</u>	<u>1/1/93</u>	<u>1/1/94</u>	<u>Future Effective (Date)</u>
Air Fresheners			
Single Phase Aerosols	70		30 (1996)
Double Phase Aerosols	30		
Liquids/Pump Sprays	18		
Solids/Gels	3		
Dual Purpose Air Freshener- Disinfectant Aerosol Sprays		60	
Automotive Windshield Washer Fluids:			
Type A Areas*	35		
All Other Areas	10		
Bathroom and Tile Cleaners		5	
Engine Degreasers	75		50 (1996)
Floor Polishes/Waxes			
Products for Flexible Flooring Materials		7	
Products for Nonresilient Flooring		10	

Table of Standards
(continued)

Percent Volatile Organic Compounds by Weight

<u>Product Category</u>	<u>1/1/93</u>	<u>1/1/94</u>	<u>Future Effective (Date)</u>
Wood Floor Wax		90	
Furniture Maintenance Products			
Aerosols		25	
All Other Forms except Solid or Paste Forms		7	
General Purpose Cleaners		10	
Glass Cleaners	6		
Hairsprays	80		55 (1998)
Hair Mousses		16	
Hair Styling Gels		6	
Insect Repellents			
Aerosols		65	
Laundry Prewash			
Aerosols/Solids		22	
All Other Forms		5	
Nail Polish Removers		85	75 (1996)
Oven Cleaners			
Aerosols/Pump Sprays	8		
Liquids	5		
Shaving Creams		5	

* Type A Areas include only the following: Del Norte, Shasta and Trinity Counties; the Great Basin Valley, Lake Tahoe, Mountain Counties, and Northeast Plateau Air Basins, as defined in Title 17, California Code of Regulations, Sections 60105, 60108, 60111, and 60113.

- (b) For consumer products for which the label, packaging, or accompanying literature specifically recommends dilution prior to use, the limits specified in subsection (a) shall apply to the product only after the minimum recommended dilution has taken place. For purposes of this subsection (b), "minimum recommended dilution" shall not include recommendations for incidental use of a concentrated product to deal with limited special application such as hard-to-remove soils or stains.
- (c) Notwithstanding the provisions of Section 94509(a), a consumer product manufactured prior to the earliest effective date specified for that product in the Table of Standards may be sold, supplied, or offered for sale for up to one year after the earliest specified effective date. This subsection (c) does not apply to any product with a specified effective date of 1/1/93 that is sold, supplied, or offered for sale in the Bay Area Air Quality Management District.
- (d) For those consumer products that are registered under the Federal Insecticide, Fungicide, and Rodenticide Act, (FIFRA; 7 U.S.C. Section 136-136y), the effective date of the VOC standards specified in subsection (a) is one year after the date specified.
- (e) Effective January 1, 1993, for any consumer product for which VOC standards are specified under subsection (a), no person shall sell, supply, offer for sale, or manufacture in California any consumer product which contains any ozone-depleting compound regulated by the U.S. Environmental Protection Agency (EPA) under its final rule "Protection of Stratospheric Ozone" (Published at 53 Federal Register (FR) 30566-30602 (August 12, 1988) or with an ozone-depleting potential of greater than 0.00 as listed in the appendix entitled "AFEAS Report" of the United Nation's Environmental Panel Integrated Report "Scientific Assessment of Stratospheric Ozone: 1989". Before using any halogenated compound as a replacement for a VOC in consumer products whose ozone-depleting potential is not addressed in the AFEAS Report, the manufacturer or user of that compound must determine the compound's ozone-depleting 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.
- (f) The requirements of subsection (e) shall not apply to:
- 1) any existing product formulation that complies with the Table of Standards which is sold, supplied, offered for sale in California prior to the effective date of this article, or any existing product formulation that is sold supplied, offered for sale in California prior to the effective date of this article that is reformulated to meet the Table of Standards as long as the ozone depleting compound content does not increase; and

- 2) to any ozone-depleting compounds that may be present as an impurity in a consumer product in an amount equal to or less than 0.01% by weight.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94510. Exemptions

- (a) This article shall not apply to any consumer products manufactured in California for shipment and use outside of California.
- (b) The provisions of Section 94509(a) do not apply to a manufacturer who sells, supplies, or offers for sale in California a consumer product that does not comply with the VOC standards specified in Section 94509(a), as long as the manufacturer can demonstrate both that the consumer product is intended for shipment and use outside of California, and that the manufacturer has taken reasonable prudent precautions to assure that the consumer product is not distributed to California.
- (c) The requirements of Section 94509(a) shall not apply to fragrances and colorants up to a combined level of 2 percent by weight contained in any consumer product.
- (d) The requirements of Section 94509 shall not apply to paint, furniture coatings, or architectural coatings including aerosol (spray) paints.
- (e) The requirements of Section 94509(a) shall not apply to any VOC which either:
- (1) has a vapor pressure of less than 0.1 mm Hg at 20 degrees Centigrade, or
 - (2) consists of more than 12 carbon atoms, if the vapor pressure is unknown.
- (f) The requirements of Section 94509(a) shall not apply to the following organic compound in insect repellents:
- (1) 2-ethyl-1,3-hexanediol (Rutgers 612).
- (g) The requirements of Section 94512(b) shall not apply to consumer products registered under FIFRA.
- (h) The requirements of Section 94509(a) shall not apply to air fresheners that are comprised entirely of fragrance, less

compounds not defined as VOCs under Section 94508 or exempted under Section 94510(e).

- (i) The requirements of Section 94509(a) shall not apply to air fresheners containing at least 98% paradichlorobenzene.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94511. Innovative Products

- (a) 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 characteristic of the product formulation, design, delivery systems or other factors, the use of the product will result in less VOC emissions as compared to emissions from 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 in emissions that would have occurred from that existing product had it been reformulated to meet the Table of Standards and retained the same product efficacy as the original formulation.
- (b) For the purposes of this section, "representative consumer product" means a consumer product which meets the VOC standards specified in Section 94509(a) and, based on tests generally accepted by the consumer products industry and concurred with by the Executive Officer, has similar efficacy as other complying consumer products in the same product category.
- (c) For the purposes of this section an "existing product" is any formulation of the same product category and form sold, supplied manufactured, or offered for sale in California prior to the effective date of this article.
- (d) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under this subsection (a). The application shall include the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition the applicant must provide necessary information to enable the Executive Officer to establish enforceable conditions for granting the exemption including, but not limited to, the VOC content for the innovative product, test methods for determining the VOC content and other parameters identified as necessary for the performance of the product. All information submitted by a manufacturer pursuant to this section shall be handled in accordance with the procedures specified in Title 17, California Code of Regulation, Sections 91000-91022.

- (e) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete. If the Executive Officer determines there are deficiencies in the application, the manufacturer shall be notified in writing of the decision, specifying the reasons for denial.
- (f) Within 90 days after an application has been deemed complete, the Executive Officer shall determine whether, under what conditions, and to what extent, an exemption from the requirements of Sections 94509 will be permitted. The applicant and the Executive Officer may mutually agree to a longer time period for reaching a decision, and additional supporting documentation may be submitted by the applicant before a decision has been reached. The Executive Officer shall notify the applicant of the decision in writing and specify the reasons for approving or denying the exemption. An exemption granted by the Executive Officer pursuant to this section may specify such terms and conditions that are necessary to insure that emissions from the product will meet the emissions reductions specified in subsection (a), and that such emissions reductions can be enforced.
- (g) In granting an exemption, the Executive Officer shall establish, for the product, conditions that are enforceable. These conditions shall include the VOC content of the innovative product, dispensing rates, application rates or other products deemed necessary. The Executive Officer shall also specify the test methods for determining conformance to the conditions established. The test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures.
- (h) For any product for which an exemption has been granted pursuant to this section, the manufacturer shall notify the Executive Officer in writing within 30 days of any change in the product formulation or recommended product usage directions, and shall also notify the Executive Officer within 30 days if the manufacturer learns of any information which would alter the emissions estimates submitted to the Executive Officer in support of the exemption application.
- (i) If VOC standards are lowered for a product category through any subsequent rulemaking, all innovative product exemptions granted for products in the product category, except as noted in this subpart, shall have no force and effect as of the effective date of the modified VOC standard. This subpart shall not include those innovative products the VOC emissions of which are less than the appropriate lowered VOC standard and for which a written notification of such emissions' status versus the lowered VOC standard has been submitted to and approved by the Executive Officer at least 60 days before the effective date of such standard.
- (j) If the Executive Officer believes that a consumer product for which an exemption has been granted no longer meets the criteria for an innovative product specified in subsection (a), the Executive Officer may hold a public hearing in accordance with the procedures specified in Title 17, California Code of Regulations, Part III, Chapter 1,

Subchapter 1, Article 4 (commencing with Section 60040), to determine if the exemption should be modified or revoked.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94512. Administrative Requirements

- (a) Most Restrictive Limit If anywhere on the container of any consumer product, on any sticker or label affixed thereto, or in any sales or advertising literature, any representation is made that the product may be used as, or is suitable for use as a consumer product for which a lower VOC standard is specified in Section 94509(a), then the lowest VOC standard shall apply. This requirement does not apply to general purpose cleaners.
- (b) Code-Dating No later than three months after the effective date of this article, each manufacturer of a consumer product subject to Section 94509 shall clearly display on each consumer product container or package, the date on which the product was manufactured, or a code indicating such date. If a manufacturer uses a code indicating the date of manufacture, an explanation of the code must be filed with the Executive Officer of the ARB no later than three months after the effective date of this article.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94513. Registration

- (a) On or before March 1, 1991, and no later than March 1 of every third year thereafter, each manufacturer of consumer products for which a VOC standard is specified in Section 94509(a) or approved as an innovative product under Section 94511, must register such products with the Executive Officer. The registration shall include, but not be limited to, the following information:
 - (1) the brand name for each consumer product;
 - (2) the owner of the trademark or brand name;
 - (3) the product category to which the consumer product belongs;
 - (4) the product forms (aerosol, pump, liquid, solid, etc.);
 - (5) the California annual sales in pounds per year and the method used to calculate California annual sales;

- (6) the total VOC (as defined in Section 94508) content in percent by weight which: (a) has a vapor pressure of greater than or equal to 0.1 mm Hg at 20 degrees Centigrade, or (b) consists of 12 or less carbon atoms, if the vapor pressure is unknown;
- (b) Manufacturers shall also provide the registration data specified in subsection(a) for the following consumer products: automotive cleaners (bug and tar removers, brake cleaners, chrome polishes, leather/vinyl cleaners, tire dressings, wheel cleaners), dusting sprays, industrial spray buff products, insect repellents (creams, pump sprays, solids/sticks), laundry detergents, laundry starch products, rug deodorizers, shaving gels, paint strippers, household, lawn and garden, pesticides, household adhesives and sealants, lubricants, carb and choke cleaners, aerosol food products, charcoal lighter fluid, fabric protectants, water proofing products and air fresheners comprised of 100% fragrance. Upon 90 days written notice, the Executive Officer may also require a manufacturer to supply the registration data listed in subsection (a) for any consumer product that the Executive Officer may specify. If the Executive Officer determines that the registration data is no longer necessary for any consumer product in this section, he or she shall notify manufacturers that data submission is no longer necessary.
- (c) All information submitted by manufacturers pursuant to Section 94513 shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Sections 91000-91022.

NOTE: Authority cited: Sections 39600, 39601, 41511, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, 41511, and 41712, Health and Safety Code.

94514. Variances

- (a) Any person who cannot comply with the requirements set forth in Section 94509, because of extraordinary reasons beyond the person's reasonable control may apply in writing to the Executive Officer for a variance. The variance application shall set forth:
- (1) the specific grounds upon which the variance is sought;
 - (2) the proposed date(s) by which compliance with the provisions of Section 94509 will be achieved, and
 - (3) a compliance report reasonably detailing the method(s) by which compliance will be achieved.
- (b) Upon receipt of a variance application containing the information required in subsection (a), the Executive Officer shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance from the requirements in Section 94509 is

necessary and will be permitted. A hearing shall be initiated no later than 75 days after receipt of a variance application. Notice of the time and place of the hearing shall be sent to the applicant by certified mail not less than 30 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Regulatory Notice Register and sent to every person who requests such notice, not less than 30 days prior to the hearing. The notice shall state that the parties may, but need not, be represented by counsel at the hearing. At least 30 days prior to the hearing, the variance application shall be made available to the public for inspection. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.

- (c) No variance shall be granted unless all of the following findings are made:
- (1) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with Section 94509 would result in extraordinary economic hardship.
 - (2) that the public interest in mitigating the extraordinary hardship to the applicant by issuing the variance outweighs the public interest in avoiding any increased emissions of air contaminants which would result from issuing the variance.
 - (3) that the compliance report proposed by the applicant can reasonably be implemented, and will achieve compliance as expeditiously as possible.
- (d) Any variance order shall specify a final compliance date by which the requirements of Section 94509 will be achieved. Any variance order shall contain a condition that specifies increments of progress necessary to assure timely compliance, and such other conditions that the Executive Officer, in consideration of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.
- (e) A variance shall cease to be effective upon failure of the party to whom the variance was granted to comply with any term or condition of the variance.
- (f) Upon the application of any person, the Executive Officer may review, and for good cause, modify or revoke a variance from requirements of Section 94509 after holding a public hearing in accordance with the provisions of subsection (b).

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94515. Test Methods

- (a) Testing to determine compliance with the requirements of this article, shall be performed using one or more of the following analytical methods: (1) Method 24-24A, Part 60, Title 40, Code of Federal Regulations, Appendix A, July 1, 1988; (2) Method 18, Federal Register 48, no. 202, October 18, 1983; (3) Method 1400, NIOSH Manual of Analytical Methods, Volume 1, February 1984; or (4) Environmental Protection Agency Method 8240 "GC/MS Method for Volatile Organics," September 1986. Alternative methods which are shown to the satisfaction of the Executive Officer to accurately determine the concentration of VOCs in a subject product or its emissions may be used upon approval of the Executive Officer.
- (b) Compliance may also be demonstrated through calculation of the volatile organic compound content from records of the amounts of constituents making up the product. If this option is used, daily records of the amounts and chemical composition of the constituents must be kept for at least three years.
- (c) In determining compliance with the requirements of this article, the results of tests conducted by the Executive Officer or by the Environmental Protection Agency to determine the volatile organic compound content of consumer products shall take precedence over the results of tests conducted by others to determine that volatile organic compound content. The results of tests conducted by manufacturers or others to determine the volatile organic compound content of consumer products shall be subject to verification by the Executive Officer.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94516. Severability

Each part of this article shall be deemed severable, and in the event that any part of this article is held to be invalid, the remainder of this article shall continue in full force and effect.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

PROPOSED AMENDMENTS TO THE DEODORANT AND ANTI-PERSPIRANT REGULATION

Amend Section 94505, Title 17, California Code of Regulations, to read as follows:

94505. Variances.

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

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

(b) Upon receipt of a variance application containing the information required in subsection (a), the Executive Officer shall hold a public hearing to determine whether, under what conditions, and to what extent, a variance from the requirements in Section 94502 is necessary and will be permitted. The hearing shall be held in accordance with the procedures specified in Title 17, California Code of Regulations, Part III, Chapter 1, Subchapter 1, Article 4, Sections 60045-60053. A hearing shall be initiated no later than 75 days after receipt of a variance application. Notice of the time and place of the hearing shall be sent to the applicant by

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1. Proposed Amendments to Section 94505, Title 17, California Code of Regulations, for this rulemaking are shown in underline to indicate additions to the text and ~~strikeout~~ to indicate deletions. Section 94505 was approved by the Air Resources Board on November 8, 1989, as part of a new Regulation For Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants, New Subchapter 8.5, Consumer Products; Article 1, Antiperspirants and Deodorants, Sections 94500-94506, Title 17, California Code of Regulations. This regulation has not yet been formally approved by the Office of Administrative Law.

certified mail not less than 30 days prior to the hearing. Notice of the hearing shall also be submitted for publication in the California Regulatory Notice Register and sent to every person who requests such notice, not less than 30 days prior to hearing. The notice shall state that the parties may, but need not be, represented by counsel at the hearing. At least 30 days prior to the hearing, the variance application shall be made available to the public for inspection. Interested members of the public shall be allowed a reasonable opportunity to testify at the hearing and their testimony shall be considered.

- (c) No variance shall be granted unless all of the following findings are made:
- (1) that, because of reasons beyond the reasonable control of the applicant, requiring compliance with Section 94502 would result in extraordinary economic hardship;
 - (2) that the public interest in mitigating the extraordinary hardship to the applicant by issuing the variance outweighs the public interest in avoiding any increased emissions of air contaminants which would result from issuing the variance;
 - (3) that the compliance report proposed by the applicant can reasonably be implemented, and will achieve compliance as expeditiously as possible.
- (d) Any variance order shall specify a final compliance date by which the requirements of Section 94502 will be achieved. Any variance order shall contain a condition that specifies increments of progress necessary to assure timely compliance, and such other conditions that the Executive Officer, in consideration of the testimony received at the hearing, finds necessary to carry out the purposes of Division 26 of the Health and Safety Code.

- (e) No variance issued shall have a duration of more than one year.
- (f) A variance shall cease to be effective upon failure of the party to whom the variance was granted to comply with any term or condition of the variance.
- (g) Upon the application of any person, the Executive Officer may review, and for good cause, modify or revoke a variance from the requirements of Section 94502 after holding a public hearing in accordance with the provisions of subsection (b).

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

PROPOSED AMENDMENTS TO THE DEODORANT AND ANTI-PERSPIRANT REGULATION

Adopt new Section 94503.5, Title 17, California Code of Regulations, to read as follows¹:

94511. Innovative Products

- (a) The Executive Officer shall exempt a consumer product from the requirements of Section 94502(a) or 94502(b) if a manufacturer demonstrates by clear and convincing evidence that, due to some characteristic of the product formulation, design, delivery systems or other factors, the use of the product will result in less VOC emissions as compared to emissions from 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 in emissions that would have occurred from that existing product had it been reformulated to meet the table of standards and retained the same product efficacy as the original formulation.
- (b) For the purposes of this section, "representative consumer product" means a consumer product which meets the VOC standards specified in Section 94502(a) or 94502(b) and, based on tests generally accepted by the consumer products industry and concurred with by the Executive Officer, has similar efficacy as other complying consumer products in the same product category.
- (c) For the purposes of this section an "existing product" is any formulation of the same product category and form sold, supplied manufactured, or offered for sale in California prior to the effective date of this article.
- (d) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under subsection (a). The application shall include

1. New Section 94503.5, Title 17, California Code of Regulations, is proposed as an addition to Article 1, Antiperspirants and Deodorants, Sections 94500-94506, Title 17, California Code of Regulations. Sections 94500-94506 were approved by the Air Resources Board on November 8, 1989, but have not yet been formally approved by the Office of Administrative Law.

the supporting documentation that demonstrates the reduction of emissions from the innovative product, including the actual physical test methods used to generate the data and, if necessary, the consumer testing undertaken to document product usage. In addition the applicant must provide necessary information to enable the Executive Officer to establish enforceable conditions for granting the exemption including but not limited to the VOC content for the innovative product, test methods for determining the VOC content and other parameters identified as necessary for the performance of the product. All information submitted by a manufacturer pursuant to this section shall be handled in accordance with the procedures specified in Title 17, California Code of Regulation, Sections 91000-91022.

- (e) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete. If the Executive Officer determines there are deficiencies in the application, the manufacturer shall be notified in writing of the decision, specifying the reasons for denial.
- (f) Within 90 days after an application has been deemed complete, the Executive Officer shall determine whether, under what conditions, and to what extent, an exemption from the requirements of Sections 94502(a) or 94502(b) will be permitted. The applicant and the Executive Officer may mutually agree to a longer time period for reaching a decision, and additional supporting documentation may be submitted by the applicant before a decision has been reached. The Executive Officer shall notify the applicant of the decision in writing and specify the reasons for approving or denying the exemption. An exemption granted by the Executive Officer pursuant to this section may specify such terms and conditions that are necessary to insure that emissions from the product will meet the emissions reductions specified in subsection (a), and that such emissions reductions can be enforced.
- (g) In granting an exemption, the Executive Officer shall establish, for the product, conditions that are enforceable. These conditions shall include the VOC content of the innovative product, dispensing rates, application rates or other products deemed necessary. The Executive Officer shall also specify the test methods for determining conformance to the conditions established. The test methods shall include criteria for reproducibility, accuracy, and sampling and laboratory procedures.
- (h) For any product for which an exemption has been granted pursuant to this section, the manufacturer shall notify the Executive Officer in writing within 30 days of any change in the product formulation or recommended product usage directions, and shall also notify the Executive Officer

within 30 days if the manufacturer learns of any information which would alter the emissions estimates submitted to the Executive Officer in support of the exemption application.

- (i) If VOC standards are lowered for a product category through any subsequent rulemaking, all innovative product exemptions granted for products in the product category, except as noted in this subpart, shall have no force and effect as of the effective date of the modified VOC standard. This subpart shall not include those innovative products the VOC emissions of which are less than the appropriate lowered VOC standard and for which a written notification of such emissions' status versus the lowered VOC standard has been submitted to and approved by the Executive Officer at least 60 days before the effective date of such standard.
- (j) If the Executive Officer believes that a consumer product for which an exemption has been granted no longer meets the criteria for an innovative product specified in subsection (a), the Executive Officer may hold a public hearing in accordance with the procedures specified in Title 17, California Code of Regulations, Part III, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040), to determine if the exemption should be modified or revoked.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

Repeal Article 3, Consumer Products in the Bay Area Air Quality Management District, Sections 94520-94527, Title 17, California Code of Regulations, as follows:

Article 3. Consumer Products in the Bay Area Air Quality Management District

94520. Applicability.

Except as provided in Section 94523, this article shall apply to any person who sells, supplies, offers for sale, or manufacturers consumer products in the Bay Area Air Quality Management District.

Note: Authority cited: Section 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.

94521. Definitions.

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

(1) Air Freshener means many consumer product including, but not limited to, sprays, wicks, powders, and crystals, designed for the purpose of masking odors, providing a scent, or deodorizing. "Air freshener" does not include personal bodily hygiene products, or products that function primarily as disinfectants or cleaning products.

(1) Air Freshener means any consumer product designed for the purpose of masking odors, providing a scent, or deodorizing. This category includes, but is not limited to, pressurized spray systems (aerosols), pump spray products, liquids (alone or within absorbing materials such as pads and wicks), gels, powders, or crystals. Pressurized spray products include single phase products, where the liquid contents of the products are present in a single, homogeneous phase, and dual phase products, where the liquid contents of the products are present in more than one phase and which requires that the product be shaken before use. air fresheners do not include personal bodily hygiene products, or products that function primarily as disinfectants, cleaning products, or rug deodorizers.

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1. This regulation was approved by the Air Resources Board on June 14, 1990, but has not yet been formally approved by the Office of Administrative Law.

- (2) Automotive Windshield Washer Fluid means any liquid designed for use in a motor vehicle windshield washer fluid system for the purpose of cleaning, washing, or wetting the windshield(s). "Automotive windshield washer fluid" does not include an fluid which exists in a new motor vehicle at the time the vehicle is manufactured or sold to an ultimate purchaser.
- (3) Consumer Product means a chemically formulated product used by household, commercial, and institutional consumers, including; but not limited to, detergents, cleaning compounds, polishes, floor finishes, cosmetics, personal care products, home, lawn, and garden products, disinfectants, sanitizers, and automotive specialty products but do not include paint, furniture coatings, or architectural coating.
- (4) Engine Degreaser means a consumer product designed to remove grease, grime, oil and other contaminants from the external surfaces of engines.
- (5) Executive Officer means the Executive Officer of the Air Resources Board, or his or her delegate.
- (6) Glass Cleaner means a specialty cleaning product designed primarily for cleaning surfaces made of glass.
- (7) Hairspray means a consumer product designed primarily for the purpose of dispensing droplets of a resin on and into a hair coiffure which will impart sufficient rigidity to the coiffure to establish or retain the style for a period of time.
- (8) Manufacture means any specialty cleaning product designed to clean and to remove dried food deposits from oven walls.
- (9) Oven Cleaner means any specialty cleaning product designed to clean and to remove dried food deposits from oven walls.
- (10) Volatile Organic Compound means any compound containing at least one atom of carbon, except methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, or carbonates, ammonium carbonate, 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (GFC-11), dichlorodifluoromethane (GFC-12), chlorodifluoro-methane (HGFC-22), trifluoromethane (HFC-23), trichlorotrifluoroethane (GFC-113), dichlorotetra-fluoroethane (HFC-134a), dichlorofluoroethane (HGFC-123), tetrafluoroethane (HFC-134a), dichlorofluoroethane (HGFC-141b), and chlorodifluoroethane (HGFC-142b).

NOTE: Authority cited: Section 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.

94522. Standards for Consumer Products.

- (a) Except as provided in Section 94523, after January 1, 1993 no person shall sell, supply, offer for sale, or manufacture for sale in the Bay Area Air Quality Management District any consumer product which, at the time of sale or manufacture, contains volatile organic compounds in excess of the limits specified in the following Table of Standards. For consumer products for which the label, packaging, or accompanying literature specifically recommends dilution prior to use, the limits specified in the Table of Standards shall only apply to the product after the minimum recommended dilution has taken place.

Table of Standards

Percent Volatile Organic Compounds by Weight

<u>Product Category</u>	<u>Percent VOC</u>
Automotive Windshield Washer Fluid	23%
Hairspray	80%
Air Fresheners	35%
<u>single phase aerosol</u>	<u>70%</u>
<u>all other forms</u>	<u>30%</u>
Engine Degreaser	50%
Oven Cleaner	10%
Glass Cleaner	10%

- (b) Effective January 1, 1993, no person shall sell, supply, offer for sale, or manufacture for use in the BAAQMD any consumer product subject to the standards in 94522 (a) which contains any ozone-depleting compound regulated by the U.S. Environmental Protection Agency (EPA) under its final rule "Protection of Stratospheric Ozone" (Published at 53 Federal Register (FR) 30566-30602 (August 12, 1988) or with an ozone-depleting potential of greater than 0.00 as listed in the appendix entitled "AFEAS Report" of the United Nation's Environmental Panel Integrated Report "Scientific assessment of Stratospheric Ozone: 1989". Before using any halogenated compound as a replacement for a VOC in any consumer products whose ozone-depleting potential is not addressed in the AFEAS Report, the manufacturer or user of that compound must determine the compound's ozone-depleting 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. This requirement does not apply to any product formulation introduced to the market prior to "the adoption date of this regulation", or to any ozone-depleting compounds that may be present as an impurity in a consumer product ingredient in an amount equal to or less than 0.01% by weight.

NOTE: Authority cited: Section 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.

94523. Exemptions.

- (a) This article shall not apply to any person who manufactures consumer products in the Bay Area Air Quality Management District for shipment or use outside of the Bay Area Air Quality Management District.
- (b) The requirements of Section 94522 shall not apply to fragrances and colorants up to a combined level of 2 percent by weight contained in any consumer product.
- (c) The requirements of Section 94522 shall not apply to any volatile organic compound which either:
 - (1) has a vapor pressure of less than 0.1 mm Hg at 20 degrees Centigrade, or
 - (2) consists of more than 12 carbon atoms, if the vapor pressure is unknown.
- (d) The requirements of Section 94522 shall not apply to air fresheners containing at least 98 paradichlorobenzene.
- (e) The requirement of Section 94522 shall not apply to air fresheners composes of 100% fragrance oil impregnated on or dispensed from an inert support.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.

94524. Innovative Products.

The Executive Officer shall may exempt a consumer product from the requirements of Section 94522 if the manufacturer demonstrates by clear and convincing evidence that, due to some characteristic of the product formulation, design, delivery system, or other factors,

the use of the product will result in volatile organic compound emissions equal to or less than VOC emissions from a consumer products of the same product category which meets the volatile organic compound limits specified in Section 94522. An exemption granted by the Executive Officer pursuant to this subdivision may specify such terms and conditions that are necessary to insure that emissions from the product will be equal to or less than emissions from a consumer products of the same product category and that such emission reductions can be enforced.

94525. Administrative Requirements.

Labeling. No later than 90 days after the effective date of this article, each manufacturer of the consumer product subject to this article shall clearly display on each consumer product container the date on which the product was manufactured, or a code indicating such date. If a manufacturer uses a code indicating the date of manufacture, an explanation of the code must be filed with the Executive Officer in advance of the code's use by the manufacturer. For manufacturers who already have a code in use on the effective date of this article, an explanation of the code must be filed with the Executive Officer within 90 days of the effective date.

NOTE: Authority cited: Section 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.

Section 94526. Test Methods.

- (a) Testing to determine the volatile organic compound content of a consumer product, or to determine compliance with the requirements of this article, shall be performed using one or more of the following methods: (1) Method 24-24A, Part 60, Title 40, Code of Federal Regulations, Appendix A, July 1, 1988; (2) Method 1400, NIOSH Manual of Analytical Methods, volume 1, February 1984; or (4) Environmental Protection Agency Method 8240 "GC/MS Method for Volatile Organics," September 1986.
- (b) The results of test conducted by manufacturers or others to determine the volatile organic compound content of consumer products shall be subject to verification by the Executive Officer. In determining compliance with the requirements of this article, the results of tests conducted by the Executive Officer to

determine the volatile organic compound content of consumer products shall take precedence over the results of test conducted by others to determine the volatile organic compound content.

NOTE: Authority cited: Sections 39600, 39601, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 40000, and 41712, Health and Safety Code.

94527. Severability.

Each part of this article shall be deemed severable, and in the event that any part of this article is held to be invalid, the remainder of this article shall continue in full force and effect.

NOTE: Authority cited: Section 39600, 39601, and 41712, Health and Safety Code. Reference: Section 39002, 39600, 40000, and 41712, Health and Safety Code.