California Environmental Protection Agency

Air Resources Board

Initial Statement of Reasons for Proposed Amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants

Release Date: September 8, 2000

State of California
AIR RESOURCES BOARD

Initial Statement of Reasons for Proposed Amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants

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Initial Statement of Reasons for Proposed Amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants

Executive Summary

Executive Summary

A. Introduction

To reduce excess ozone concentrations in California, control of ozone precursors such as volatile organic compounds (VOC) and nitrogen oxides is important. As part of our ozone control strategy the Air Resources Board (ARB) has been regulating VOC emissions from antiperspirants and deodorants (AP/DO) since 1989. Reductions of VOC emissions from AP/DOs has occurred in three phases with the final limits becoming effective January 1, 1999.

An antiperspirant is a product applied to the underarm to reduce perspiration. Antiperspirant products are regulated by the United States Food and Drug Administration. To be sold as an antiperspirant, manufacturers must demonstrate that the product reduces perspiration by at least 20 percent in at least 50 percent of a target population. Deodorants are products designed to reduce odor caused by perspiration. Aerosol forms of AP/DOs use VOC propellants such as propane and butanes to expel and apply the product.

The Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants [Antiperspirant and Deodorant Regulation (Title 17, California Code of Regulations, sections 94500-94506.5)] established VOC standards for both aerosol and non-aerosol antiperspirants and deodorants. These standards are based on the vapor pressure of VOCs. When the regulation was first proposed one goal was to set limits such that aerosol forms produced no more VOC emissions than other product forms. Therefore, in the Antiperspirant and Deodorant Regulation, high volatility organic compounds (HVOC) are regulated separately from medium volatility organic compounds (MVOC). HVOCs are the propellants used in aerosol products, whereas the MVOC used in both aerosols and non-aerosols is generally ethanol.

The regulation established a zero percent HVOC standard for aerosol AP/DOs, effective January 1, 1995. This limit essentially required manufacturers to use non-VOC propellants in their aerosol formulas. In its 1989 regulatory hearing, the Board recognized the technological challenge of the zero percent HVOC limits and allowed manufacturers additional time beyond 1995 to comply, provided manufacturers submitted a "compliance plan" showing that they were making a good faith effort to meet the limits. For manufacturers operating under an approved compliance plan, interim limits of 40 percent by weight HVOC for aerosol antiperspirants and 14 percent HVOC (the "40/14" limits) for aerosol deodorants were established effective January 1, 1997. However, all manufacturers were required to meet the zero percent HVOC limit no later than January 1, 1999. This provision effectively extended the deadline for compliance with the zero percent HVOC limits for aerosols from about five years to about nine years.

This Initial Statement of Reasons for Proposed Rulemaking consists of this Executive Summary and a Technical Support Document (TSD). In the Executive Summary we provide a plain English discussion, in a question and answer format, of the proposed amendments to the Antiperspirant and Deodorant Regulation and the rationale for them. The economic and environmental impacts of the proposed amendments are also discussed. This summary is intended to satisfy the requirements of Government Code section 11346.2(a)(1), which requires that a non-controlling "plain English" summary of the regulation be made available to the public.

B. Proposed Amendments to the Antiperspirant and Deodorant Regulation

1. What are the current VOC limits for aerosol antiperspirants?

The HVOC limit is zero percent by weight and the MVOC limit is 10 percent by weight. These limits for aerosol antiperspirants became effective on January 1, 1999.

2. What are the proposed amendments to the Antiperspirant and Deodorant Regulation?

Staff is proposing to change the HVOC limit for aerosol antiperspirants from zero percent to 40 percent HVOC by weight. This proposal would essentially reinstate the 1997 HVOC limit, and is consistent with the HVOC content limit of products currently being sold in California.

Other amendments are proposed for clarity and to streamline the reporting requirements. Rather than completing an annual survey, under the staff's proposal, manufacturers would only be required to supply information if requested by the ARB. However, upon request manufacturers would have to supply additional data to better allow staff to follow sales and emissions trends and evaluate technologies to achieve additional emission reductions.

3. Why are we proposing to amend the Antiperspirant and Deodorant Regulation?

During the development of aerosol antiperspirants designed to comply with the 1999 VOC limits, manufacturers notified ARB staff of an unanticipated technological problem with achieving the zero percent HVOC limit. As a result of this technological issue, in the fall of 1998, five aerosol antiperspirant manufacturers applied for and received variances from the zero percent HVOC limit. These five companies manufacture products that comprise nearly 100 percent of the aerosol antiperspirant market. These variances expire on January 1, 2001. Manufacturers believed that with the variances, they would have sufficient time to resolve the problem and begin manufacturing compliant products. Over the course of the variances, manufacturers were required to sell products complying with the 1997 limit of 40 percent HVOC and 10 percent MVOC (Variances, 1998).

Through review of compliance plans required as a condition of the variances, ARB staff has monitored and assessed manufacturers' progress toward compliance. In conducting research to understand the technological issue, it is now known that the non-VOC propellant hydrofluorocarbon-152a (HFC-152a) is not inert, as previously thought, but is reacting with the aluminum chlorohydrate. The reaction results in an unstable formulation and byproducts. One byproduct of the reaction is acetaldehyde, a chemical identified by the ARB as a toxic air contaminant. It is also known that the reaction causes can corrosion, in some cases into the base metal of the can (Variances, 1998). At present HFC-152a is the only non-VOC propellant available to achieve the zero percent HVOC limit, and aluminum chlorohydrate is the only active ingredient approved by the United States Food and Drug Administration for use in aerosol antiperspirants (Variances, 1998).

ARB staff believes manufacturers have investigated every feasible approach to develop compliant aerosol antiperspirants including the use of alternative propellants, alternative packaging systems, modified aluminum chlorohydrate, and other formula changes. Significant resources have been expended by AP/DO manufacturers and the supplier of HFC-152a to overcome this problem. Despite diligent efforts, and exploring all feasible avenues to overcome the problem, manufacturers have not been successful. Therefore, amendments to the Antiperspirant and Deodorant Regulation are being proposed to ensure that a technologically feasible HVOC limit for aerosol antiperspirants is in place. It is important to note however, that the technological problem affects only aerosol antiperspirants and does not affect aerosol deodorants.

The other amendments are proposed to improve the clarity of the regulation and streamline the reporting requirements. For example, under the staff's proposal manufacturers would no longer need to complete an annual survey of sales and emissions.

4. What is the effective date of the proposed HVOC limit for aerosol antiperspirants?

Staff is proposing that the limit become effective on January 1, 2001. This date would coincide with the expiration of the variances.

5. What are the emissions from AP/DOs?

From data compiled from the 2000 survey of 1999 sales of AP/DO products, statewide VOC emissions were about 2.4 tons per day (tpd). Emissions from aerosol antiperspirants were about 1.2 tpd. Aerosol antiperspirants represent about 15 percent of total sales and about 50 percent of the total VOC emissions.

6. Will all manufacturers be able to manufacture and sell aerosol antiperspirants after January 1, 2001?

Yes. Any manufacturer could begin manufacturing and selling aerosol antiperspirants that meet the 40 percent by weight HVOC limit and 10 percent MVOC limit after January 1, 2001.

7. Does the proposed 40 percent HVOC limit apply to aerosol deodorants as well?

No. Aerosol deodorants are able to meet the zero percent HVOC limit.

8. Is the proposed 40 percent HVOC limit technologically and commercially feasible?

Yes. ARB staff has concluded that the 40 percent HVOC limit for aerosol antiperspirants is commercially and technologically feasible because manufacturers of aerosol antiperspirants have been successfully selling products meeting this limit in California since 1997.

9. Will the 40 percent HVOC limit be reassessed?

Staff will continue to follow technology through the reporting requirements and technical literature. If any new technologies are identified that would allow for additional emission reductions, staff will return to the Board with the recommended changes.

10. What was the process staff used to develop the amendments to the Antiperspirant and Deodorant Regulation?

Staff followed the progress of manufacturers toward meeting the zero percent HVOC limit through the required quarterly compliance plans. Also, when it was determined that the HVOC limit for aerosol antiperspirants did not appear feasible, staff worked closely with all affected manufacturers while developing the proposed amendments. Staff also conducted a public workshop on August 22, 2000, to seek input from all interested parties on the proposal.

11. Who is affected by the proposed amendments?

Companies who manufacture aerosol antiperspirants, as well as companies that provide raw materials used in aerosol antiperspirants, would be affected by the proposal to raise the HVOC limit. Companies who manufacture any form of AP/DOs would be affected by the proposal to streamline the reporting requirements. The annual reporting of sales and formulation data would be removed and replaced with a requirement to report data within 90 days, only if requested by the ARB.

C. Environmental Impacts

12. Do the proposed amendments have an impact on ground level ozone?

Yes. Reinstating the 40 percent HVOC limit for aerosol antiperspirants would result in excess ozone precursor emissions as compared to the emissions that would result from allowing the zero percent HVOC limit to continue in effect after the variances expire on January 1, 2001. In 2001, excess emissions are about one tpd statewide. In 2010 the excess emissions would be about 1.3 tpd statewide, which equates to excess emissions of about 0.6 tpd in the South Coast Air Basin. These excess emissions are expected to have an adverse impact on ground level ozone concentrations. However, ARB staff believes that preserving the technological feasibility of the HVOC limit and allowing commercially acceptable aerosol antiperspirants to continue to be available to California consumers overrides the excess emissions that would result from the proposed amendments.

13. Do the proposed amendments have an impact on global warming, water quality, solid waste disposal, or stratospheric ozone depletion?

When ARB staff proposed an interim limit of 40 percent HVOC for aerosol antiperspirants in 1995 they investigated the potential environmental impacts on global warming, water quality, solid waste disposal, and stratospheric ozone depletion. This analysis indicated that there would likely be no adverse environmental impacts from enacting the 40 percent HVOC limit (ARB 1995). Based on this analysis we expect the environmental impacts of the staff's current proposal to reinstate the 40 percent HVOC limit to be unchanged from the analysis conducted in 1995.

However, in the 1995 analysis staff did acknowledge that there would potentially be an extremely minor adverse impact on global warming due to emissions of HFC-152a (ARB 1995). In this rulemaking we are proposing to reinstate the 40 percent HVOC limit for aerosol antiperspirants. Under this proposal no additional use of HFC-152a would be necessary. Therefore the proposed amendments would have no additional impact on global warming.

14. Will the proposed amendments have an impact on particulate matter?

The proposed amendments are not likely to cause an increase in the formation of particulate matter (PM), particularly secondary organic aerosols. Secondary organic aerosols are usually formed from the phootoxidation of organic compounds with carbon numbers equal to seven or more (Grosjean and Seinfeld, 1989; Wang et al., 1992). Although the proposed amendments would result in excess VOC emissions, the excess emissions will come from the VOC hydrocarbon propellants used in aerosol antiperspirants. These propellants, propane, butane, and isobutane, are compounds containing three or four carbon atoms. Excess emissions of these small compounds would likely have a negligible, if any, impact on increased formation of PM in the atmosphere.

15. Will the proposed amendments result in an increase in the use or emissions of toxic air contaminants?

No. The regulation contains a provision in section 94502(c) that prohibits the use of compounds identified as toxic air contaminants by the ARB.

16. Do the proposed amendments affect our State Implementation Plan (SIP) commitments?

Yes. The VOC emission reductions are part of our near-term SIP commitment for consumer products. Overall, the Antiperspirant and Deodorant Regulation was designed to achieve an 80 percent reduction in VOC emissions from AP/DOs. Rather than an 80 percent reduction, the proposed amendments would result in a 63 percent reduction from the uncontrolled baseline, and result in a shortfall of 1.3 tpd statewide in 2010.

We will address this shortfall when the statewide control plan is revised in 2001. At that time, we will be evaluating all feasible, cost-effective emission reductions, including re-examining the standards currently in place for a broad range of consumer products.

D. Economic Impacts

17. What are the economic impacts of the proposed amendments to the Antiperspirant and Deodorant Regulation?

Overall, we expect the proposed amendments to have either no impact or a positive economic impact on AP/DO manufacturers. For aerosol antiperspirant manufacturers the proposed amendments represent a cost savings because they would be able to continue selling their current products without further reformulation. All manufacturers of AP/DOs, whether they manufacture aerosol antiperspirants or not, would experience some cost savings by not having to annually report sales and emissions data.

However, some businesses may be adversely impacted by the proposed amendments. Some raw material suppliers, particularly manufacturers of HFC-152a, may not realize the full return on their investment, as would have occurred had the zero percent HVOC limit remained in effect for aerosol antiperspirants. However, we have evaluated the impact on raw material suppliers and concluded that any impact would be negligible.

18. Will the proposed amendments have any adverse economic or competitiveness impacts on California businesses or consumers?

We do not expect the proposed amendments to have an adverse economic impact or impede the competitiveness of California businesses. This is because the proposed amendments affect all manufacturers and marketers in the same way, regardless of their location.

Also, we do not expect that the proposed amendments would have a noticeable impact on employment and the status of businesses in California because they impose no additional costs on businesses. The proposed amendments would allow any company to begin manufacturing aerosol antiperspirants for sale in California if they meet the 40 percent HVOC limit. This, in turn, could improve the overall competitiveness of California businesses and could lead to slight increases in employment. In fact, because of the overall cost savings that would result from these amendments, manufacturers likely will experience a positive economic impact.

California consumers may also benefit from the availability of more types of aerosol antiperspirant products and less expensive products, if manufacturers' cost savings are passed on to them.

Recommendation

We recommend that the Board approve the proposed amendments to the Antiperspirant and Deodorant Regulation.

State of California
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Initial Statement of Reasons for Proposed Amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants

Technical Support Document

I.

Introduction

A. Overview

This Technical Support Document (TSD), contains the Air Resources Board (ARB) staff's proposal for amending the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants, [(Antiperspirant and Deodorant Regulation), Title 17, California Code of Regulations (CCR), sections 94500-94506.5]. In this Introduction staff provides information on California's Consumer Products Regulations, the State Implementation Plan, and the national consumer products rule. In addition, this TSD contains the following information:

- Rationale for the Proposed Amendments
- Proposed Amendments
- Antiperspirant and Deodorant Emissions
- Environmental Impacts
- Economic Impacts
- Future Activities

B. Background on California's Consumer Products Regulations

1. California Clean Air Act

In 1988, the California Clean Air Act (CCAA) was signed into law. Through the CCAA the Legislature declared that attainment of state ambient air quality standards is necessary to promote and protect public health, particularly the health of children, older people, and those with respiratory disease. The Legislature also directed that these standards be attained by the earliest practicable date.

The CCAA added section 41712 to the California Health and Safety Code, which requires the ARB to adopt regulations to achieve the maximum feasible reduction in volatile organic compounds (VOCs) emitted by consumer products. As part of the regulatory process, the ARB must determine that adequate data exist to adopt the

regulations, that the regulations are necessary, technologically and commercially feasible, and do not eliminate a product form. In enacting section 41712, the Legislature gave ARB new authority to control emissions from consumer products, an area that had previously been subject to very few air pollution control regulations.

2. California's Consumer Products Regulations

To date, the Board has taken several actions to fulfill the requirements of the Health and Safety Code, section 41712. On November 8, 1989, the Antiperspirant and Deodorant Regulation became the first regulation to be approved by the ARB under its authority to control consumer product emissions (ARB 1989). After the adoption of this regulation, the consumer products regulation was adopted. This regulation has been amended several times and now contains VOC limits for 46 categories of consumer products (ARB 1999). A third regulation was approved in June 2000 that changed the VOC content limits for 35 categories of aerosol paints to photochemical reactivity limits (ARB 2000). In addition, two voluntary regulations have been adopted to provide compliance flexibility to companies (ARB 1994, ARB 1997).

C. State Implementation Plan

On November 15, 1994, the ARB adopted the State Implementation Plan (SIP) for ozone (ARB 1994b). The SIP serves as California's overall long-term plan for attainment of the federal ambient air quality standard for ozone. Together with significant reductions from stationary industrial facilities, mobile sources (e.g. cars, trains, boats), and other area sources (e.g. architectural and industrial maintenance coatings), the emission reduction commitments in the consumer products element of the SIP are an essential part of California's effort to attain and maintain both the National and State ambient air quality standards for ozone.

Our current commitment in the SIP is to reduce consumer product VOC emissions by 85 percent by the year 2010 (including the adopted regulations). This reduction is necessary for the South Coast Air Basin, among others, to attain the federal ozone standard and meet the rate-of-progress requirements under the federal Clean Air Act. To meet the emission reductions committed to in the SIP, we developed a multi-faceted program comprised of near-term, mid-term, and long-term control measures. The emission reductions from the Antiperspirant and Deodorant Regulation are part of our near-term commitments. Upon full implementation, the VOC limits in the Antiperspirant and Deodorant Regulation were designed to achieve an overall 80 percent VOC reduction.

It is important to mention here that ARB will soon begin to evaluate the current 85 percent emission reduction commitment for consumer products. This evaluation is part of the ARB's 2001 Statewide Control Plan process. As part of this process we will be evaluating all feasible cost-effective emission reductions, including re-examining the

standards currently in place for a broad range of consumer products. Potential emission reduction measures may include reactivity-based control strategies.

D. Comparable Federal Regulations

The United States Environmental Protection Agency (U.S. EPA) has promulgated a national consumer products rule under section 183(e) of the federal Clean Air Act: *National Volatile Organic Compound Emission Standards for Consumer Products* (40 CFR Part 59, subpart C, sections 59.201 et seq.; see the September 11, 1998, *Federal Register*, Vol. 63, No. 176, pages 48819-48847). The rule specifies VOC limits for a number of consumer product categories, including aerosol antiperspirants and deodorants (U.S. EPA 1998). The effective date for all categories in the U.S. EPA's rule was December 10, 1998. In the U.S. EPA's rule, however, the limits for aerosol antiperspirants and deodorants are less stringent than even the interim limits (i.e., the 40/14 limits) specified in the ARB's Antiperspirant and Deodorant Regulation.

There are other significant differences between the U.S. EPA's rule and ARB regulations. The U.S. EPA's rule applies nationwide to consumer product manufacturers, importers and distributors (but not retailers), while the ARB Antiperspirant and Deodorant Regulation applies to any person (including retailers) who sells, supplies, offers for sale, or manufactures antiperspirant or deodorant products for use in California. The U.S. EPA's rule also has an unlimited sell-through period for noncomplying products manufactured before the effective date of the limits, whereas California law allows a three-year sell-through period. Also, the U.S. EPA's rule does not specifically impose restrictions on the use of toxic air contaminants in antiperspirants or deodorants.

II.

Rationale For The Proposed Amendments

A. Background

The Antiperspirant and Deodorant Regulation was first approved on November 8, 1989, and established volatile organic compound (VOC) limits for both aerosol and non-aerosol antiperspirants and deodorants (AP/DO). At that time aerosol products represented 25 percent of the total AP/DO market, and accounted for over 90 percent of the emissions from AP/DOs. Because of the disproportionate amount of emissions from the aerosol form, one goal of the regulation was to reduce the emissions from aerosols such that they produced no more emissions than any other product form (ARB 1989). To accomplish this reduction goal the Board established standards based on the vapor pressure of VOCs. As such, high volatility organic compounds (HVOCs, or compounds with a vapor pressure of greater than 80 mm Hg at 20^{o}C) are regulated separately from medium volatility organic compounds (MVOCs, or compounds with vapor pressures of greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20^{o}C). HVOCs are the propellants used in aerosol products, whereas the MVOC used in both aerosols and non-aerosols is generally ethanol. VOCs with vapor pressures less than 2 mm Hg (also known as low volatility organic compounds (LVOC)) when measured at 20^{o}C are exempt from the regulation, and are typically high molecular weight compounds used as emollients or to adjust the viscosity of the formulation. This regulation became legally effective on February 27, 1991.

Emission reductions from AP/DOs were to be accomplished in phases with the final limits becoming effective on January 1, 1995. Beginning in 1995 aerosol AP/DOs were required to meet a zero percent HVOC limit and a 10 percent MVOC limit. This essentially meant that to achieve the limit a non-VOC propellant, such as hydrofluorocarbon-152a (HFC-152a) would have to be used in place of hydrocarbon propellants. HFC-152a is an exempt VOC propellant due to its low photochemical reactivity.

However, at the 1989 hearing, the Board recognized that the zero percent HVOC limit represented a technological challenge. In light of the challenge, the Board also allowed manufacturers additional time beyond 1995 to meet the limits provided they submitted a "compliance plan" documenting their research and development efforts and their timeline for compliance. However, all manufacturers were required to comply by January 1, 1999.

In a subsequent rulemaking the Board adopted amendments to the Antiperspirant and Deodorant Regulation that established an interim limit of 40 percent HVOC for aerosol antiperspirants and 14 percent HVOC for aerosol deodorants for manufacturers operating under an approved compliance plan (the "40/14" limits). These interim limits became effective on January 1, 1997. Manufacturers were also required to continue to submit annual compliance plans to document efforts to develop products to meet the zero percent HVOC limit by January 1, 1999.

As required in section 94502(a) of the regulation, ARB staff reported to the Board on June 26, 1997, on manufacturers' progress toward achieving the 1999 aerosol AP/DO standards. At that time staff indicated that manufacturers were continuing to make good progress toward meeting the standards such that the emission reductions committed to would be achieved.

B. Technical Problem

In the fall of 1998, manufacturers indicated that they were encountering a unanticipated significant technological problem with aerosol antiperspirant prototype zero percent HVOC products. Corrosion of the can was discovered during stability testing. Stability testing is part of normal product development procedures and involves placing the product at elevated temperature levels for varying amounts of time to simulate long term storage conditions. Manufacturers notified and shared evidence of the chemical reaction with ARB staff. Initial test results indicated that a reaction was occurring between the non-VOC propellant HFC-152a and the active ingredient, aluminum chlorohydrate (Variances, 1998).

In light of this unforeseen technical issue, aerosol antiperspirant manufacturers requested a variance to allow additional time to understand the problem and to develop a solution to mitigate it. At public hearings conducted on September 29, 1998, and November 9, 1998, five manufacturers (representing almost 100 percent of the aerosol antiperspirant market) met the necessary criteria and received variances for two years, until January 1, 2001. This was believed to be a sufficient amount of time to overcome the problem and develop zero percent HVOC aerosol antiperspirants. During the variance period manufacturers were required to continue to sell their existing 40 percent HVOC/10 percent MVOC aerosol antiperspirants (Variances, 1998).

As required in the Variance Orders, manufacturers had to submit to the ARB quarterly reports on their research and development efforts and progress toward meeting the zero percent HVOC limit. Through these reports, as well as individual company meetings, ARB staff has followed manufacturers' progress toward compliance.

Information received from each company indicates that manufacturers have been diligently working with aluminum chlorohydrate suppliers, hardware suppliers, alternative propellant and packaging suppliers, and scientific experts to solve the technical problem. One supplier of HFC-152a, DuPont Fluorochemicals, has actively worked with individual manufacturers to elucidate the mechanism causing the chemical reaction and seek a solution. As a result of this research and development, it is now known that HFC-152a is not inert, as previously thought, but is reacting with the aluminum chlorohydrate. The reaction results in an unstable formulation and byproducts. One byproduct of the reaction is acetaldehyde, a chemical identified by the ARB as a toxic air contaminant. It is also known that the reaction causes can corrosion, in some cases into the base metal of the can (Variances, 1998).

C. Need for the Proposed Amendments

Once the chemical reaction was understood, manufacturers continued to work with raw material suppliers to overcome the problem. ARB staff believes manufacturers have investigated every feasible approach to develop compliant aerosol antiperspirants including the use of alternative propellants, alternative packaging systems, modified aluminum chlorohydrate, and other formula changes. Through this work, manufacturers have been able to slow, but not eliminate the problem. Significant resources have been expended by AP/DO manufacturers and the supplier of HFC-152a to overcome the technological problem. Manufacturers have limited options to overcome the problem because HFC-152a appears to be the only propellant available to achieve the zero percent HVOC limit and aluminum chlorohydrate is the only active ingredient approved by the United States Food and Drug Administration for use in aerosol antiperspirants. Use of alternative propellants, such as compressed gases (carbon dioxide and nitrogen) have thus far not proven feasible. This is because antiperspirants require consistent high pressure to expel the active ingredient, provide a uniform spray pattern, and allow for complete evacuation of product contents. The most recent compliance plans from July 2000 again indicate that the problem has not been solved. Because the technological problem has not been overcome, ARB staff believes it is appropriate to propose amendments to the regulation. Revising the HVOC limit for aerosol antiperspirants would allow technologically feasible aerosol antiperspirants to continue to be sold in California.

III.

Proposed Amendments

A. Introduction

In this Chapter we describe the staff's proposal to amend the Antiperspirant and Deodorant Regulation. Staff is proposing to raise the high volatility organic compound (HVOC) limit for aerosol antiperspirants. We are also proposing other amendments to clarify and streamline the regulation. The process for developing the proposed amendments, as well as a description of why staff believes the proposed HVOC limit for aerosol antiperspirants is commercially and technologically feasible are also provided.

B. Proposed Amendments

1. Table of Standards, Section 94502(a)

To ensure that a technologically feasible HVOC standard for aerosol antiperspirants is in place, staff is proposing to amend the HVOC limit for aerosol antiperspirants (section 94502(a) of the Antiperspirant and Deodorant Regulation). As shown in Table III-1 below (in **bold**) staff is proposing to change the current zero percent HVOC limit to 40 percent by weight HVOC beginning January 1, 2001. This proposal would essentially reinstate the 1997 HVOC limit. Although no changes are proposed to the limits for non-aerosol product forms or aerosol deodorants, these limits are shown for completeness. We are proposing that these limits would be contained in a new Table of Standards as new subsection 94502(a)(2). Proposed subsection 94502(a)(1) would contain the current limits and would continue to apply to all products manufactured prior to January 1, 2001.

We are also proposing to eliminate the requirement in section 94502(a) that required the Board in 1997, to review and consider any appropriate modifications to the 1999 limits. This hearing occurred in June of 1997 and at that time the Board determined no modifications were necessary.

TABLE III-1. Limits for Antiperspirants and Deodorants
(percent VOC by weight)

For products manufactured beginning January 1, 2001

	Effective Date	
	1/1/01	
	HVOC[a]	MVOC[b]
Aerosol Products		
Antiperspirants	**40**	10
Deodorants*	0	10
Non-Aerosol Products*	0	0

[a] High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20 C.

[b] Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20 C.

* No changes are proposed to the limits for aerosol deodorants and non-aerosol products.

2. Special Requirements for Aerosol Manufacturers, section 94502(d)

Section 94502(d) specifies the criteria that must be met by aerosol manufacturers to receive additional time to comply with the January 1, 1995, limits. Manufacturers that met these criteria were given until January 1, 1999, to comply as long as they met the interim “40/14” limits and continued to demonstrate progress toward complying with the zero percent HVOC limits.

We are proposing to modify the Special Requirements for Aerosol Manufacturers, to clarify that these requirements would apply only to products manufactured before January 1, 1999. This proposal is necessary for enforcement and ensures that only manufacturers that have been operating under approved compliance plans could manufacture and sell 40 percent HVOC aerosol antiperspirants prior to January 1, 1999. (Between January 1, 1999, and January 1, 2001, only manufacturers operating under a variance are allowed to sell 40 percent HVOC aerosol antiperspirants in California.)

3. Reporting, section 94504(b)

At present, all manufacturers of AP/DO products are required to submit annual reports on sales and formulations. To further streamline the regulation, we are proposing to eliminate the annual reporting requirements. Instead staff is proposing that manufacturers would need to submit data for their AP/DO products only upon receipt of a 90-day written notice from the ARB. This proposal is consistent with other consumer product regulations. In addition the proposal would change somewhat the type of formulation information that manufacturers must report to ARB. This could

include information on the amount of water, solids, propellants and exempt volatile organic compounds. Receiving these types of data will help ARB staff monitor emissions and potential new technologies to achieve further emission reductions from AP/DO.

C. Process for Developing the Proposed Amendments

ARB staff has been in close contact with aerosol antiperspirant manufacturers operating under approved Variance Orders through the required quarterly progress reports. Through these reports, as well as individual company meetings, ARB staff learned that manufacturers would be unable to comply with the zero percent HVOC limit within the time frame allowed by the variances (January 1, 2001). When it became clear that amendments to the regulation would be necessary, staff held a telephone conference call on August 1, 2000, with the affected industry, associations and suppliers. Conference call information was sent out to 26 different individuals representing manufacturers, associations and raw material suppliers. During the conference call, staff explained the proposed amendments to the regulation, solicited comments on the proposal, and answered questions from participants. On August 22, 2000, a public workshop was held to discuss the proposed amendments and seek stakeholder input on the proposal. The public workshop notice was sent to over one hundred interested parties including manufacturers, associations, raw material and packaging suppliers, formulators, and environmental groups. The notice and proposed regulatory language were also made available on the ARB website.

D. Commercial and Technological Feasibility

In this section ARB staff explains the statutory requirements regarding commercial and technological feasibility of the proposed limit, and why we believe the proposed amendment to the HVOC limit for aerosol antiperspirants meets these criteria. Health and Safety Code section 41712(d) requires all consumer products regulations adopted by the Board to be "commercially and technologically feasible."

1. Commercially Feasible

The term "commercially feasible" is not defined in State law. However, staff has concluded that a regulation is "commercially feasible" as long as the "basic market demand" for a particular product can be met. "Basic market demand" is the underlying need of consumers for a product to fulfill a necessary function. This must be distinguished from consumer "preference," which may be towards specific attributes of a particular product.

Staff believes the proposed limit for aerosol antiperspirants meets the criterion for commercial feasibility because "basic market demand" has been met. Aerosol antiperspirants containing 40 percent HVOC are currently sold in California and represent a significant share of the AP/DO market, indicating consumer satisfaction.

2. Technologically Feasible

Technological feasibility is a different concept than “commercial feasibility,” and does not take into account the cost of the complying product. Staff believes that a proposed limit is technologically feasible if it meets at least one of the following criteria: (1) the limit is already being met by at least one product within the same category, or (2) the limit can reasonably be expected to be met in the time frame provided with additional research and development efforts. While under Variance Orders aerosol antiperspirant manufacturers have been able to continue selling their products that meet the 40 percent HVOC and 10 percent MVOC limit. Because these products represent virtually all of the aerosol antiperspirants sold, and have been successfully sold since 1997, staff concludes that the criterion to set a “technologically” feasible limit has been met.

3. Conclusion

All currently marketed aerosol antiperspirants (100 percent) already comply with the 40 percent HVOC limit and represent 15 percent of total sales of all forms of AP/DOs. Given these facts, staff concludes that the proposed 40 percent HVOC limit is both technologically and commercially feasible.

IV.

Ozone Precursor Emissions

A. Introduction

The use of antiperspirants and deodorants (AP/DO) results in volatile organic compound (VOC) emissions that originate from solvents and propellants. As required by section 94504(b) of the Antiperspirant and Deodorant Regulation, manufacturers annually report specific data regarding product sales and VOC content. Data from the survey conducted in early 2000 provided data for the 1999 calendar year. In this Chapter we summarize these data, and compare them to the baseline survey data from 1989.

B. Summary of 1999 Sales and Emissions

Data for 1999 sales and emissions of AP/DOs were received from approximately 65 manufacturers representing virtually 100 percent of the AP/DO market. Of these 65 manufacturers, 8 are located in California. Results of the survey show that AP/DO products are sold in many forms including aerosols, and non-aerosol forms such as roll-ons, solids, pumps, and others. Data were reported for 368 AP/DO products.

The Antiperspirant and Deodorant Regulation established limits based on vapor pressure of the VOCs. High volatility organic compounds (HVOC) are propellants used in aerosol products and are defined as organic compounds that exert a vapor pressure greater than 80 mm Hg when measured at 20^0C. Whereas, medium volatility organic compounds (MVOC) are defined as organic compounds exerting a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20^0C. The MVOC most commonly used in AP/DO products is ethanol. Low volatility organic compounds (LVOC) have vapor pressures of less than 2 mm Hg when measured at 20^oC, and are exempt from the regulation. These are typically high molecular weight compounds used as emollients or to adjust the viscosity of the formulation. The survey

requires that manufacturers report data for their products based on these three vapor pressure categories.

Table IV-1 below contains data compiled for the 1999 calendar year. These data show that about 22 tons per day (tpd) of AP/DO products are sold daily in California, and these sales result in total MVOC and HVOC emissions of about 2.4 tpd.

Table IV-1. 1999 AP/DO Sales and Total HVOC and MVOC Emissions by Form

	Antiperspirant Sales (tpd)	Antiperspirant Emissions (tpd)	Deodorant Sales (tpd)	Deodorant Emissions (tpd)
Aerosol	3.2	1.2	0.9	0.8
Solid	7.0	0	3.0	0.2
Roll-On	2.3	0	0.1	0
Pump	0	0	0.0	0
Other	4.9	0.2	0.4	0
TOTAL SALES = 21.8 TPD				
TOTAL EMISSIONS = 2.4 TPD				

Figure IV-1 below compares sales, in tpd, of non-aerosol and aerosol product forms for the year 1999. Non-aerosol antiperspirants made up the majority of sales (14.2 tpd) in 1999. Figure IV-1 also shows that aerosol antiperspirants comprise about 15 percent (3.2 tpd) of total sales.

Figure IV-1. 1999 AP/DO Sales by Form

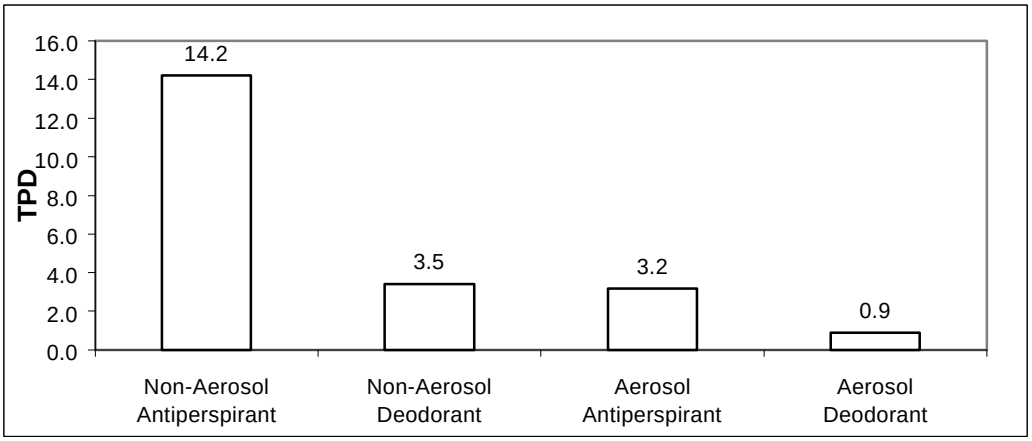
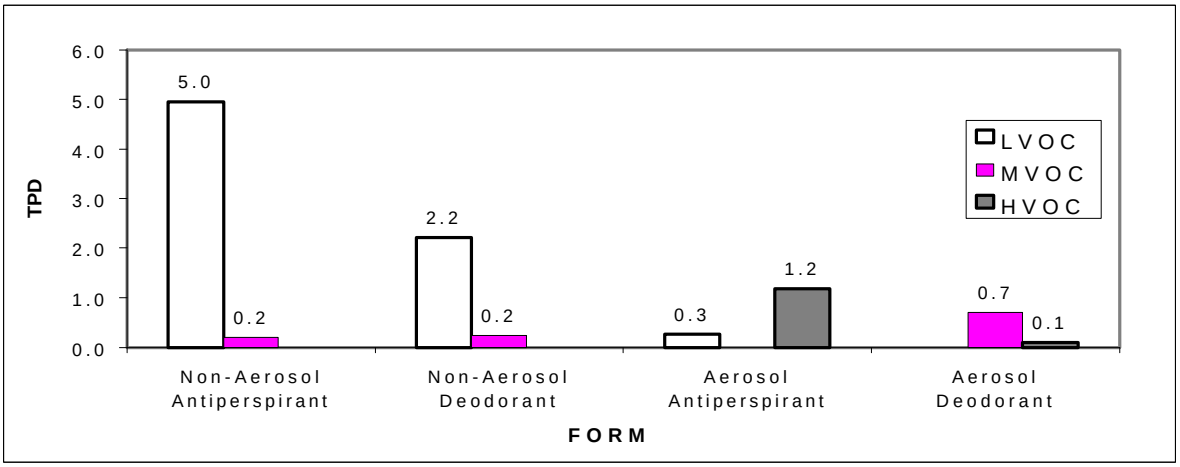


Figure IV-2 below shows emissions of HVOC, MVOC, and LVOC, in tpd, from non-aerosol and aerosol forms. While non-aerosol forms comprise about 80 percent of sales of AP/DO products sold in California, as shown in Figure IV-2, these products do not significantly contribute to HVOC and MVOC emissions. Almost all LVOC emissions (about 7.2 tpd, or 96 percent) are from non-aerosol products. The data also show that

aerosol forms emit virtually all of the MVOC and HVOC emissions. HVOC emissions, the hydrocarbon propellants used in aerosol products, were about 1.3 tpd, while MVOC emissions, primarily ethanol, were about 1.1 tpd (Ethanol is an exempt MVOC compound). Aerosol antiperspirants emit about 50 percent of total HVOC and MVOC emissions (Figure IV-2). Although data from the 1999 calendar year show small emissions of HVOC (0.1 tpd) from aerosol deodorants, the zero percent HVOC limit is now effective and these emission reductions have been realized.

Figure IV-2. 1999 AP/DO Emissions by Form



*Note – Non-aerosol forms do not have HVOC[a] emissions. Aerosol antiperspirants have only trace MVOC[b] emissions. Aerosol Deodorants have only trace LVOC[c] emissions.

[a] High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20°C.
[b] Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than 80 mm Hg when measured at 20°C.
[c] Low volatility organic compounds, i.e., any organic compound that exerts a vapor pressure less than 2 mm Hg measured at 20°C.

C. Significant Emission Reductions Already Achieved

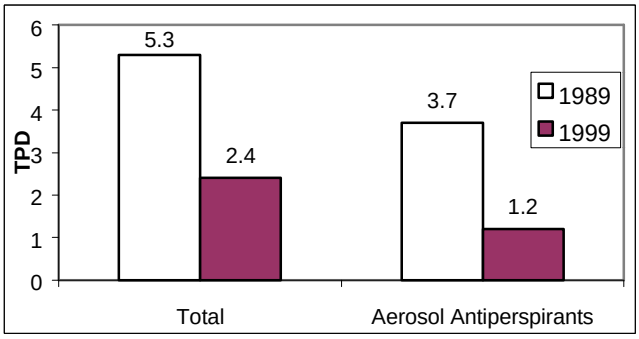
A comparison of the 1989 Staff Report data and the survey data for 1999 show that significant emission reductions have been achieved from AP/DOs, especially aerosol antiperspirants. The 1989 staff report for the Antiperspirant and Deodorant Regulation provides an overview of the market and emission trends. As shown in Figure IV-3, baseline HVOC and MVOC emissions from all AP/DO products were 5.3 tpd in 1989 (ARB 1989).

Comparing data between 1989 and 1999 shows that there has been a downward trend in aerosol sales since 1989. In 1989 aerosol forms represented 25 percent of the market (data not shown), while in 1999 they represented about 20 percent (1999 data shown in Figure IV-1 of this Chapter). This could indicate a shift in consumer

preference to non-aerosol forms. Further analysis shows that aerosol antiperspirants represented 20 percent of the total market share in 1989 and now represent about 15 percent of the total market (1999 data shown in Figure IV-1 of this Chapter).

Figure IV-3 graphically shows that total HVOC and MVOC emissions have been reduced from 5.3 tpd in 1989 to 2.4 tpd in 1999. Figure IV-3 also shows that aerosol antiperspirant emissions have been significantly reduced from 3.7 tpd in 1989 to 1.2 tpd in 1999. However, even with these significant emission reductions, the staff's proposal results in a State Implementation Plan (SIP) shortfall. The SIP impact of implementing the staff's proposal is explained and quantified in Chapter V of this TSD.

Figure IV-3. Comparison of VOC Emissions from 1989 and 1999



V.

Environmental Impacts

A. Summary of Environmental Impacts

This Chapter contains the ARB staff's assessment of the potential environmental impacts that would result from the proposed amendments to the Antiperspirant and Deodorant Regulation. ARB staff evaluated the potential environmental impacts on ground-level ozone, particulate matter, toxicity, global warming, stratospheric ozone depletion, water quality, and solid waste disposal. We also evaluated the impact on the emission reduction commitments contained in the State Implementation Plan (SIP) for ozone.

To summarize the results of the assessment, ARB staff found that the proposed amendment to the high volatility organic compound (HVOC) limit for aerosol antiperspirants will result in excess volatile organic compound (VOC) emissions of about 1 ton per day (tpd), which, in 2010, results in excess emissions of about 1.3 tpd statewide. These excess ozone precursor emissions would have an adverse impact on ground level ozone concentrations. No other adverse environmental impacts are expected to result from the proposed amendment to the HVOC limit for aerosol antiperspirants.

The proposed amendments to the Special Requirements for Aerosol Manufacturers and Reporting requirements are administrative changes designed to clarify and streamline the regulation and would result in no potential adverse environmental impacts. Because no potential adverse impacts are expected, the focus of the following analysis will be on the proposal to increase the HVOC limit for aerosol antiperspirants.

B. Legal Requirements for Assessing the Environmental Impacts

Both the California Environmental Quality Act (CEQA) and Board policy require ARB staff to consider the potential adverse environmental impacts of proposed regulations. Because the ARB's program involving the adoption of regulations has been certified by the Secretary of Resources (see Public Resources Codes section 21080.5), CEQA allows the ARB's environmental analysis to be included in the ARB Technical Support Document in lieu of preparing an environmental impact report or negative declaration. In addition, the ARB will respond in writing to all significant environmental points raised by the public during the public review period or at the Board hearing. These responses will be contained in the Final Statement of Reasons for the modifications to this regulation.

Public Resources Code Section 21159 (Analysis of Methods of Compliance) requires that the environmental impact analysis conducted by ARB include the following:

- an analysis of the reasonably foreseeable environmental impacts of the methods of compliance (Section C);
- an analysis of reasonably foreseeable feasible mitigation measures (Section D); and,
- an analysis of reasonably foreseeable alternative means of compliance with the rule or regulation (Section E).

C. Potential Environmental Impacts

1. Impact on Ground-Level Ozone

The proposed amendments would have an adverse impact on ground-level (tropospheric) ozone concentrations. This is because the proposed amendment to reinstate the 40 percent HVOC limit for aerosol antiperspirants will result in excess ozone precursor emissions of about 1 tpd, which, in 2010, results in excess emissions of about 1.3 tpd statewide. In 2010 the excess emissions in the South Coast Air Basin will be about 0.6 tpd. However, the intent in proposing to modify this standard is to preserve the technological feasibility of the aerosol antiperspirant HVOC limit and ensure that basic market demand can be met. Without modifying this standard, aerosol antiperspirant manufacturers would experience adverse economic impacts and aerosol antiperspirants would be unavailable to California consumers. We believe that these considerations override any adverse impacts that may occur as a result of these amendments.

2. Impact on global warming, water quality, solid waste disposal, and stratospheric ozone depletion

When ARB staff proposed an interim limit of 40 percent HVOC for aerosol antiperspirants in 1995 they investigated the potential environmental impacts on global warming, water quality, solid waste disposal, and stratospheric ozone depletion. This analysis indicated that there would likely be no adverse environmental impacts from enacting the 40 percent HVOC limit (ARB 1995). Because ARB staff is proposing to return the HVOC limit to 40 percent for aerosol antiperspirants, we expect the environmental impacts of this proposal to be unchanged from the analysis conducted in 1995.

However, in the 1995 analysis staff did acknowledge that there would potentially be an extremely minor adverse impact on global warming due to emissions of hydrofluorocarbon-152a (HFC-152a) (ARB 1995). The staff's proposal to reinstate the 40 percent HVOC limit for aerosol antiperspirants would require no additional use of HFC-152a. Therefore the proposed amendments would have no additional impact on global warming.

3. Impact on Particulate Matter (Aerosols)

The proposed amendments are not likely to cause an increase in the formation of particulate matter (PM), particularly secondary organic aerosols. Secondary organic aerosols are usually formed from the phootoxidation of organic compounds with carbon numbers equal to seven or more (Grosjean and Seinfeld, 1989; Wang et al., 1992). Although the proposed amendments would result in excess VOC emissions, the excess emissions will come from the VOC hydrocarbon propellants used in aerosol antiperspirants. These propellants, propane, butane, and isobutane, are compounds containing three or four carbon atoms. Excess emissions of these small compounds would likely have a negligible, if any, impact on increased formation of PM or secondary organic aerosols in the atmosphere.

4. Impact on Toxic Air Contaminants

We do not expect that the proposed amendments would have any impact on emissions or use of toxic air contaminants. This is because the Antiperspirant and Deodorant Regulation currently contains a provision (section 94502(c)) that prohibits the use of toxic air contaminants in antiperspirant and deodorant (AP/DO) products.

D. Feasible Mitigation Measures

ARB staff has identified an adverse environmental impact that would result from the proposed amendments, an increase in ozone precursor emissions of 1.3 tpd statewide in 2010. These excess emissions would have an adverse impact on tropospheric ozone concentrations.

Although the proposed amendments result in an adverse impact, ARB staff has not identified any feasible mitigation measures. At present time, ARB staff is unaware of any technology that would allow aerosol antiperspirants to be successfully formulated to a limit of less than 40 percent by weight HVOC. Therefore, any other lower alternative limit for aerosol antiperspirants would result in elimination of this product form, which state law (Health and Safety Code Section 41712(c)) precludes. However, ARB staff intends to continue to monitor technological advances and will continue to examine all feasible cost effective means to further reduce aerosol antiperspirant emissions in the future.

E. Evaluation of Alternatives

The ARB staff has evaluated alternative means of compliance with the proposed 40 percent HVOC limit for aerosol antiperspirants. The Antiperspirant and Deodorant Regulation already contains, in section 94503.5, an Innovative Products provision. This provision allows manufacturers to produce aerosol antiperspirant products that have a higher HVOC content than allowed by the standards. However the manufacturer must demonstrate through clear and convincing evidence that through unique characteristics of the product formulation, design or delivery, that use of their product results in less VOC emissions on a per use basis than a representative complying product. Absent the Innovative Products provision, the ARB staff is unaware of any alternative that would achieve the same result as direct compliance with the proposed limit.

F. Impact on the SIP for Ozone

1. Background

The 1994 SIP for Ozone is California's master plan for achieving the federal ozone standard in six areas of the state by 2010. The SIP includes state measures to control emissions from motor vehicles and fuels, consumer products and pesticide usage, local measures for stationary and area sources, and federal measures for sources under exclusive or practical federal control. The United States Environmental Protection Agency (U.S. EPA) approved the 1994 SIP in September 1996 (62 Federal Register 1150-1201 (January 8, 1997)).

Once U.S. EPA approved the 1994 SIP, the emission inventories and assumptions used in it are frozen. Evaluations of the impacts on the 1994 SIP of new measures or modifications to existing measures must use the same emission inventories and assumptions used in developing the 1994 SIP. As ARB has implemented the SIP over the last five years, some measures have delivered more reductions than anticipated, while other measures have delivered fewer reductions due to technical or economic concerns.

2. Review of SIP Baseline Measure: Antiperspirants and Deodorants

Because the AP/DO standards were already adopted at the time the 1994 Ozone SIP was developed, emission reductions from those standards were incorporated into the SIP baseline. In the 1994 SIP, an 80 percent reduction in VOC emissions from AP/DOs was anticipated. This would be accomplished by limiting the VOC content of non-aerosol products to zero percent HVOC and MVOC, and zero percent HVOC and 10 percent MVOC limit for aerosol products. Table V-1 contains the forecasted uncontrolled emissions statewide for AP/DOs in 2010, the emissions inventory for 1999, and the projected emission reductions projected for 2010. As indicated in the table, projected emission reductions in 2010 assumed in the SIP are about 6.1 tpd.

Table V-1
Antiperspirant and Deodorant Control Baseline Measure
Using 1994 SIP Emissions Inventory
Statewide in 1999, and 2010 (in tons of VOC per day)

1994 SIP Category	Uncontrolled Emissions 2010	2010 Controlled Inventory	1999 Survey Inventory	Reductions Assumed in 1994 SIP
Antiperspirants and Deodorants	7.6	1.5	2.4	6.1

3. Impacts of Proposed Amendments

The proposed amendments relax the HVOC standard for aerosol antiperspirants from zero percent HVOC to 40 percent HVOC but do not effect aerosol deodorants or non-aerosol products. In terms of “1994 SIP currency” the relaxation of the standard and the loss in emission reductions would result in a SIP shortfall. As shown in Table V-2, the projected shortfall in “1994 SIP currency” is estimated to be about 1.3 tpd of VOC emission reductions statewide in 2010 from what was assumed in the 1994 SIP.

Table V-2
Antiperspirant and Deodorant Control with Proposed Amendments
Using 1994 SIP Emissions Inventory
Statewide in 2010 (in tons of VOC per day)

1994 SIP Category	Uncontrolled Emissions	Emission Reduction Assumed in 1994 SIP	Emission Reduction due to Proposal	Emission Reduction Shortfall in "1994 SIP currency"
Antiperspirants and Deodorants	7.6	6.1	4.8	1.3

4. Summary of 1994 SIP Analysis of Proposed Amendments

Federal ozone nonattainment areas rely on emission reductions from consumer products, including AP/DOs, to meet federal ozone standards between 2005 and 2010, depending on the area. However, using "1994 SIP currency," the staff's proposal would fall short of the 1994 SIP baseline emission reductions target by about 1.3 tpd of VOC emission reductions statewide in 2010. Staff will address this shortfall when the statewide control plan is revised in 2001. At that time, staff will be assessing all feasible cost-effective emission reductions, including re-examining the standards currently in place for a broad range of consumer products under the jurisdiction of the ARB.

VI.

Economic Impacts

A. Introduction

In this Chapter we describe the economic impacts that would be expected from implementation of the proposed amendments to the Antiperspirant and Deodorant Regulation. ARB staff is proposing amendments that would reinstate the 40 percent high volatility organic compound (HVOC) limit for aerosol antiperspirants from the current zero percent HVOC limit. As explained in Chapter II, all aerosol antiperspirant products currently being sold in California already comply with the proposed 40 percent by weight limit, and would not need further reformulation. We are also proposing amendments to the Special Requirements for Aerosol Manufacturers and Reporting requirements to streamline and clarify the regulation.

The overall impacts are summarized in section B, followed by a more detailed discussion of specific aspects of the economic impacts in the sections listed below:

(C) Economic Impacts Analysis on California Businesses as Required by the California Administrative Procedure Act (APA); and
(D) Analysis of Potential Impacts to California State or Local Agencies.

B. Summary of Findings

Manufacturers of antiperspirants and deodorants (particularly aerosol antiperspirant manufacturers) and companies that manufacture raw materials used in aerosol antiperspirants (manufacturers of hydrofluorocarbon- 152a [HFC-152a]) are impacted by the proposed amendments.

Overall, the proposed amendments represent a cost savings to aerosol antiperspirant manufacturers, and are expected to result in a positive economic impact. This is because products meeting the 40 percent by weight HVOC limit for aerosol

antiperspirants have been successfully sold since 1997. To comply, no further reformulation or use of HFC-152a is required. Because of this, ARB staff concludes that manufacturers of HFC-152a may be somewhat adversely impacted by the proposed amendments because they may not realize the full return on their investment, as would have occurred had the zero percent HVOC limit for aerosol antiperspirants remained in effect.

DuPont Fluorochemicals is currently the only manufacturer of HFC-152a for aerosol antiperspirants sold in California. Although the proposed amendments will reduce demand for HFC-152a and thereby reduce revenue that would have been realized from HFC-152a sales, DuPont Fluorochemicals is a very large corporation that should not experience a significant adverse impact from the reduction in HFC-152a demand from only one consumer product category (i.e. aerosol antiperspirants).

The proposed elimination of certain reporting requirements would provide cost savings to all antiperspirant and deodorant (AP/DO) manufacturers

We also expect no impact or a positive impact on manufacturers' profitability, employment in California, the status of California businesses, or competitiveness of California businesses with other states. California consumers may also benefit from the availability of more types of products and less expensive products, if manufacturers' cost savings are passed on to the consumer.

C. Economic Impacts Analysis on California Businesses as Required by the California Administrative Procedure Act

1. Legal Requirements

Section 11346.3 of the Government Code requires State agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment must include a consideration of the impact of the proposed regulation on California jobs, business expansion, elimination or creation, and the ability of California business to compete with businesses in other states.

Also, State agencies are required to estimate the cost or savings to any state or local agency and school district in accordance with instructions adopted by the Department of Finance. The estimate shall include any nondiscretionary cost or savings to local agencies and the cost or savings in federal funding to the state.

2. Findings

a. Potential Impact on California Businesses

Overall, we expect no change or a positive impact on the profitability of California businesses. The results of the 1999 AP/DO products survey show that of the 67 manufacturers or distributors supplying AP/DO products to the California market, 8 were located in California. However, none of these California businesses make aerosol antiperspirants. Because the proposed amendments represent an overall relaxation compared to the existing regulation and lessen the reporting requirements, the proposed amendments represent a cost savings. Although we have determined that there may be a slight adverse impact on raw material suppliers (HFC-152a manufacturers) these businesses are not located in California, and the adverse impact is not a significant one.

b. Potential Impact on the Consumer

Because manufacturers are no longer required to reformulate their products, the consumer would not experience the higher product prices that might have occurred if the current regulation remains intact. Manufacturers may also experience cost savings from streamlining of the regulation. To the extent that these cost savings are passed on, the consumer may encounter lower prices for products.

It is also important to note that all aerosol antiperspirant products currently in the California marketplace already comply with the proposed 40 percent by weight HVOC limit. Thus, consumer expectations and demand will not be significantly affected.

c. Potential Impact on Employment

The proposed amendments are not expected to cause a noticeable change in California employment and payroll. As a result of the proposed amendments additional manufacturers may choose to enter the aerosol antiperspirant market. This in turn could lead to a slight increase in employment.

d. Potential Impact on Business Creation, Elimination or Expansion

We do not expect the proposed amendments to have a noticeable impact on business creation, elimination or expansion. This is because the proposed amendments will likely result in a positive economic impact. It is possible that the proposed amendments could lead to business expansion or creation if additional companies choose to enter the aerosol antiperspirant market.

e. Potential Impact on Business Competitiveness

The proposed amendments would have no significant impact on the ability of California's businesses to compete with businesses in other states. This is because the proposed amendments would apply to all businesses that manufacture or market AP/DO products regardless of their location, and do not present any economic impacts specific to California businesses.

D. Analysis of Potential Impacts to California State or Local Agencies

The proposed amendments will not create costs or savings, as defined in Government Code section 11346.5 (a)(6), to any State agency or in federal funding to the State, costs or mandate to any local agency or school district whether or not reimbursable by the State pursuant to Part 7 (commencing with section 17500, Division 4, Title 2 of the Government Code), or other nondiscretionary costs or savings to local agencies. This is because the proposed amendments affect only manufacturers of aerosol antiperspirants, and their raw material suppliers. No State or local agency is engaged in or would be affected by these business activities.

VII.

Future Activities

The 2001 Statewide Control Plan will provide the Air Resources Board's (ARB) long-range vision for reducing emissions that contribute to ozone, inhalable particulate matter, and carbon monoxide pollution. To further progress toward attainment of national and State ambient air quality standards, a subset of the measures identified in the 2001 Statewide Control Plan will be used to update the State Implementation Plan for attaining the federal one-hour ozone standard. Staff plans to begin discussions with stakeholders on concepts for all sources under ARB jurisdiction including motor vehicles, off road vehicles and equipment, fuels, and consumer products. The development of the 2001 Statewide Control Plan will be a yearlong effort with extensive public input. We anticipate conducting public workshops on the proposed regulatory concepts in the fall and winter of 2000. The draft 2001 Statewide Control Plan would be released for public comment prior to consideration by the Board.

In developing concepts for the consumer products portion of the plan, staff will be analyzing the 1997 emission inventory on a category-by-category basis to determine additional feasible control measures. These categories will include antiperspirants and deodorants as well as other currently regulated and unregulated categories. We will be looking at potential emission reductions through new technologies, mass-based limits, reactivity-based limits, market incentive programs, and pollution prevention and education programs.

ARB staff is also working on amending the Alternative Control Plan (ACP) Regulation. The ACP Regulation allows participating companies to sell a high-VOC (VOC content above the limit) product in California as long as they also sell enough of a reformulated low-VOC product (VOC content below the limit) to offset the excess VOC emissions. We will be evaluating ways to provide more flexibility and increase participation in the program while maintaining the emission reductions achieved through compliance with the limits in the regulations.

References

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Air Resources Board. (1994) Proposed Alternative Control Plan Regulation for Consumer Products – Staff Report, August 1994.

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Unilever Home and Personal Care – USA. (1998) Redacted Variance Application and Variance Order, G-785-027, December 15, 1998.

Wang, S.C., Paulson, S.E., Grosjean, D., Flagan, R.C., and Seinfeld, J.H. (1992) Aerosol formation and growth in atmospheric organic/NO_x systems-I. Outdoor smog chamber studies of C_7-C_8-hydrocarbons. Atmos. Environ., 26, 403-420.

Appendix A:

Proposed Amendments to the Regulation for Reducing Volatile Organic Compound Emissions from Antiperspirants and Deodorants

PROPOSED AMENDMENTS TO THE REGULATION FOR REDUCING VOLATILE ORGANIC COMPOUND EMISSIONS FROM ANTIPERSPIRANTS AND DEODORANTS

[Note: The proposed amendments to sections 94502 and 94504, title 17, California Code of Regulations, are shown in ~~strikeout~~ to indicate proposed deletions and in underline to indicate proposed additions. No changes are proposed to Sections 94500, 94501, 94503, 94503.5, 94505, 94506, and 94506.5.]

Amend Title 17, California Code of Regulations, Sections 94502 and 94504 to read as follows:

SUBCHAPTER 8.5. CONSUMER PRODUCTS

Article 1. Antiperspirants and Deodorants

94500. Applicability.

Except as provided in Section 94503, this article shall apply to any person who sells, supplies, offers for sale, or manufactures antiperspirants or deodorants for use 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.

94501. Definitions.

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

(a) "Aerosol Product" means a pressurized spray system that dispenses antiperspirant or deodorant ingredients.

(b) "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.

(c) "Colorant" means any substance or mixture of substances, the primary purpose of which is to color or modify the color of something else.

(d) “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.

(e) “Executive Officer” means the Executive Officer of the Air Resources Board, or his or her delegate.

(f) “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 mm of Hg at 20^{o}C, the sole purpose of which is to impart an odor or scent, or to counteract a malodor.

(g) “High Volatility Organic Compound (HVOC)” means any organic compound that exerts a vapor pressure greater than 80 millimeters of Mercury (mm Hg) when measured at 20^{o}C.

(h) “Manufacturer” means any person who imports, manufacturers, assembles, produces, packages, repackages, or relabels an antiperspirant or deodorant.

(i) “Medium Volatility Organic Compound (MVOC)” means any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20^{o}C.

(j) “Non-aerosol Product” means any antiperspirant or deodorant that is not dispensed by a pressurized spray system.

(k) “Roll-on Product” means any antiperspirant or deodorant that dispenses active ingredients by rolling a wetted ball or wetted cylinder on the affected area.

(l) “Stick Product” means any antiperspirant or deodorant that contains active ingredients in a solid matrix form, and that dispenses the active ingredients by frictional action on the affected area.

(m) “Volatile Organic Compound (VOC)” means any compound containing at least one atom of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding the following:

(1) methane,
methylene chloride (dichloromethane),
1,1,1-trichloroethane (methyl chloroform),
trichlorofluoromethane (CFC-11),
dichlorodifluoromethane (CFC-12),
1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113),
1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114),
chloropentafluoroethane (CFC-115),
chlorodifluoromethane (HCFC-22),
1,1,1-trifluoro-2,2-dichloroethane (HCFC-123),
1,1-dichloro-1-fluoroethane (HCFC-141b),
1-chloro-1,1-difluoroethane (HCFC-142b),
2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124),
trifluoromethane (HFC-23),
1,1,2,2-tetrafluoroethane (HFC-134),
1,1,1,2-tetrafluoroethane (HFC-134a),
pentafluoroethane (HFC-125),
1,1,1-trifluoroethane (HFC-143a),
1,1-difluoroethane (HFC-152a),
cyclic, branched, or linear completely methylated siloxanes,
the following classes of perfluorocarbons:
(A) cyclic, branched, or linear, completely fluorinated alkanes;
(B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
(C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
(D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds to carbon and fluorine, and

(2) the following low-reactive organic compounds which have been exempted by the U.S. EPA:
acetone,
ethane,
methyl acetate
parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene).

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

94502. Standards for Antiperspirants and Deodorants.

(a) Except as provided in Sections 94503 (Exemptions), 94503.5 (Innovative Products), 94505 (Variances) and 94567(a)(1) (Hairspray Credit Program), Title 17, California Code of Regulations, no person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which, at the time of sale or manufacture, contains volatile organic compounds in excess of the limits specified in the following Tables of Standards, after the specified effective date, or after any date that has been specified by the Executive Officer pursuant to subsections (d)(2) or (d)(5):

(1) The following Table of Standards applies to products manufactured before January 1, 2001.

Table of Standards
For products manufactured before January 1, 2001
(percent volatile organic compounds by weight)

	Effective Dates							
	12/31/92		1/1/95		1/1/97		1/1/99[d]	
	HVOC[a]	MVOC[b]	HVOC[a]	MVOC[b]	HVOC[a]	MVOC[b]	HVOC[a]	MVOC[b]
Aerosol Products in Compliance Plan[c]								
Antiperspirants	60	20			40	10	0	10
Deodorants	20	20			14	10	0	10
All Other Aerosol Products								
Antiperspirants	60	20	0	10				
Deodorants	20	20	0	10				
Non-Aerosol Products	0	0	0	0				

[a] High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20 C.

[b] Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20 C.

[c] These standards apply to aerosol products manufactured by companies that have submitted a compliance plan pursuant to Section 94502(d), which has been approved by the Executive Officer.

[d] ~~The Board will hold a public hearing by July 1, 1997 to review and consider any appropriate modifications to the January 1, 1999 zero HVOC limits for aerosol antiperspirant and deodorant products.~~

(2) The following Table of Standards applies to products manufactured beginning January 1, 2001.

Table of Standards

For products manufactured beginning January 1, 2001
(percent volatile organic compounds by weight)

	Effective Dates	
	1/1/01	
	HVOC[a]	MVOC[b]
Aerosol Products		
Antiperspirants	40	10
Deodorants	0	10
Non-Aerosol Products	0	0

[a] High volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 80 mm Hg when measured at 20 C.

[b] Medium volatility organic compounds, i.e., any organic compound that exerts a vapor pressure greater than 2 mm Hg and less than or equal to 80 mm Hg when measured at 20 C.

(b) No person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which contains any of the following ozone-depleting compounds: CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-113 (1,1,2-trichloro-1,2,2-trifluoroethane), CFC-114 (1-chloro-1,1-difluoro-2-chloro-2,2-difluoroethane), CFC-115 (chloropentafluoroethane), halon 1211 (bromochlorodifluoromethane), halon 1301 (bromotrifluoromethane), halon 2404 (dibromotetrafluoroethane), HCFC-22 (chlorodifluoromethane), HCFC-123 (2,2-dichloro-1,1,1-trifluoroethane), HCFC-124 (2-chloro-1,1,1,2-tetrafluoroethane), HCFC-141b (1,1-dichloro-1-fluoroethane), HCFC-142b (1-chloro-1,1-difluoroethane), 1,1,1-trichloroethane, and carbon tetrachloride.

(c) No person shall sell, supply, offer for sale, or manufacture for sale in California any antiperspirant or deodorant which contains any compound that has been identified by the ARB in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 7, Section 93000 as a toxic air contaminant.

(d) Special Requirements for Aerosol Manufacturers. This subsection (d) applies only to aerosol antiperspirant and deodorant products manufactured before January 1, 1999.

(1) A manufacturer of aerosol products may submit to the Executive Officer a compliance plan which describes how the manufacturer will achieve compliance with the requirements of Section 94502(a) for aerosol products.

(2) For each aerosol manufacturer who submits a compliance plan pursuant to subsection (d)(1), the Executive Officer shall suspend the 1/1/1995 requirements of section 94502(a) for aerosol products until a date on or before January 1, 1999, if the compliance plan demonstrates to the Executive Officer's satisfaction that the manufacturer is making good faith efforts, either independently or as part of a cooperative effort with other manufacturers, to develop aerosol products that will comply with the requirements of section 94502(a) in accordance with a schedule which is reasonably likely to enable the manufacturer to produce an acceptable aerosol product which complies with these requirements by a date on or before January 1, 1999. Before reaching a decision to suspend the requirements of Section 94502(a), the Executive Officer may request an aerosol manufacturer to modify the compliance plan to include additional information.

(3) In order to qualify for a suspension under subsection (d)(2), the compliance plan submitted by the manufacturer must contain all of the following:

(A) A compliance schedule setting forth the sequence and respective dates for all key events in the process of developing aerosol products complying with the requirements of Section 94502(a).
(B) A commitment by each manufacturer which specifies that:

1. No later than January 1, 1997, the manufacturer will complete reformulation of aerosol antiperspirant and deodorant products to meet the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

2. No later than January 1, 1997 the manufacturer will cease manufacturing products for use in California that do not comply with the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

3. No later than January 1, 2000 the manufacturer will cease to sell, supply, or offer for sale of all products manufactured prior to January 1, 1997 that do not comply with the 1/1/1997 standards specified in Section 94502(a) for aerosol products in a compliance plan.

(C) For each manufacturer, technical detail and information on the progress each manufacturer has made and the effort each plans to make to comply with both the 1/1/1997 and 1/1/1999 HVOC standards specified

in Section 94502(a) for aerosol products in a compliance plan, including individual company timetables with “milestones” or increments of progress which allow progress to be measured. The technical information shall be sufficiently detailed to allow individual manufacturer's compliance efforts to be monitored including, at a minimum, the following information:

1. Documentation of past, planned and ongoing research to meet the 1/1/1997 HVOC standards. Documentation will include data to support whether the 1/1/1997 standards represent the lowest achievable HVOC content, by whatever method or technology is chosen by the manufacturer. If hydrofluorocarbon-152a (“HFC-152a”) is a part of the technology to be used by the manufacturer, the information shall include, at a minimum: the manufacturer's current HFC-152a allocation for any use; the supply of HFC-152a to meet the manufacturer's needs for the aerosol antiperspirant and deodorant market; an indication as to whether the amount specified is needed to cover national or California sales; manufacturer's efforts to date to receive necessary allocations; time-frame to receive allocations; the actual path to compliance, including information on the types of formulations to be tested, formulation data, prototype testing, toxicity and stability tests, packaging and valve testing, safety and efficacy testing, consumer market testing and consumer acceptance, management decision for go-ahead, large-scale production, and availability to consumer; critical path identification; the expected date of aerosol antiperspirant and deodorant production that meets the 1/1/1997 standards; and a back-up plan that describes the manufacturer's actions should HFC-152a not be available in sufficient quantities.

If a compliance method or technology other than the use of HFC-152a is chosen, the information will include at a minimum: actual path to compliance, including information on the types of formulations to be tested, formulation data, prototype testing, toxicity and stability tests, packaging and valve testing, safety and efficacy testing, consumer market testing and consumer acceptance, management decision for go-ahead, large-scale production, and availability to consumer; critical path identification; expected date to produce aerosol antiperspirants and deodorants that meet the 1/1/1997 HVOC standards; and a back-up plan describing the manufacturer's actions should the chosen compliance method or technology not succeed.

2. A description of past, ongoing, and planned research efforts to achieve the 1/1/1999 HVOC standards. The information required will be the same as for the 1/1/1997 HVOC standards, as described in Section 94502(d)(3)(C) above. This information will also include a detailed description of the pursued technologies, current status of this technology,

and the feasibility of attaining the 1/1/1999 standards. The documentation will outline key events and a timetable in the development of products to meet the 1/1/1999 HVOC standards and alternative plans if the technology does not develop as expected.

3. A list of products which each individual manufacturer will be producing under this compliance plan.

(4) A manufacturer who has received a suspension pursuant to subsection (d)(2) shall submit annual updates to the compliance plan to the Executive Officer on January 1, 1995, January 1, 1996, January 1, 1997, January 1, 1998, and January 1, 1999. These updates shall describe any changes or revisions that should be made to the compliance plan, based on any changed circumstances that have occurred since the submittal of the compliance plan or the last update. A manufacturer who has received a suspension pursuant to subsection (d)(2) shall also notify the Executive Officer in writing within 10 days after the failure of the manufacturer to meet any increment of progress specified in the compliance plan, or in any annual update to the compliance plan, and the likely effect of that failure on the ability of the manufacturer to comply with Section 94502(a) by the date specified by the Executive Officer pursuant to subsection (d)(2).

(5) Within 120 days after each compliance plan update is due, or within 120 days after notification by a manufacturer pursuant to subsection (d)(4), the Executive Officer shall determine whether the manufacturer is continuing to make good faith efforts to develop aerosol products that will comply with the requirements of section 94502(a) in accordance with a schedule which is reasonably likely to enable the manufacturer to produce an acceptable aerosol product which complies with these requirements. If the Executive Officer determines that the manufacturer is not making such good faith efforts, the Executive Officer shall withdraw the suspension effective immediately after upon written notification of the withdrawal to the manufacturer. Any antiperspirant or deodorant product manufactured prior to the date on which the manufacturer is notified that the suspension is withdrawn may be sold, supplied, or offered for sale up to three years after the effective date of the suspension withdrawal.

(6) A manufacturer may request a public hearing to review any decision made by the Executive Officer pursuant to subsections (d)(2) and (d)(5). The hearing shall be held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 1, Article 4 (commencing with Section 60040).

(e) Notwithstanding the provisions of Section 94502(a), an antiperspirant or deodorant product manufactured prior to each of the effective dates

specified for that product in the Table of Standards may be sold, supplied, or offered for sale up to three years after each of the specified effective dates. In addition, an aerosol antiperspirant or deodorant product manufactured prior to any compliance date specified by the Executive Officer pursuant to Section 94502(d)(2) may be sold supplied, or offered for sale up to three years after the specified compliance date. This subsection (e) does not apply to any antiperspirant or deodorant product which does not display on the product container or package the date on which the product was manufactured, or a code indicating such date.

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

94503. Exemptions.

(a) This article shall not apply to any person who manufactures antiperspirants or deodorants in California for shipment and use outside of California.

(b) The requirements of Section 94502(a) shall not apply to fragrances and colorants up to a combined level of 2 percent by weight contained in any antiperspirant or deodorant.

(c) The requirements of Section 94502(a) shall not apply to those volatile organic compounds that contain more than 10 carbon atoms per molecule and for which the vapor pressure is unknown, or that have a vapor pressure of 2 mm Hg or less at 20^{o}C.

(d) The medium volatility organic compound (MVOC) content standards specified in Section 94502 (a), shall not apply to ethanol.

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

94503.5 Innovative Products

(a) The Executive Officer shall exempt an antiperspirant or deodorant product from the requirements of Section 94502(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:

(1) the VOC emissions from a representative antiperspirant or deodorant product which complies with the VOC standards specified in Section 94502(a), or

(2) the calculated VOC emissions from a noncomplying representative product, if the product had been reformulated to comply with the VOC standards specified in Section 94502(a). VOC emissions shall be calculated using the following equation:

$$E_R = E_{NC} \times VOC_{STD} \div VOC_{NC}$$

Where:

E_R = The VOC emissions from the noncomplying representative product, had it been reformulated.

E_{NC} = The VOC emissions from the noncomplying representative product in its current formulation.

VOC_{STD} = The VOC standard specified in 94502(a).

VOC_{NC} = The VOC content of the noncomplying product in its current formulation.

If a manufacturer demonstrates that this equation yields inaccurate results due to some characteristic of the product formulation or other factors, an alternative method which accurately calculates emissions may be used upon approval of the Executive Officer.

(b) For the purposes of this section, "representative antiperspirant or deodorant product" means an antiperspirant or deodorant product which meets all of the following criteria:

(1) the representative product shall be subject to the same VOC limit in Section 94502(a) as the innovative product,

(2) the representative product shall be of the same product form as the innovative product, unless the innovative product uses a new form which does not exist in the product category at the time the application is made.

(3) the representative product shall have at least similar efficacy as other consumer products in the same product category based on tests generally accepted for that product category by the consumer products industry.

(c) A manufacturer shall apply in writing to the Executive Officer for any exemption claimed under subsection (a). The application shall include the supporting documentation that demonstrates the 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 any information necessary to enable the Executive Officer to establish enforceable conditions for granting the exemption including the VOC content for the innovative product and test methods for determining the VOC content. 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.

(d) Within 30 days of receipt of the exemption application the Executive Officer shall determine whether an application is complete as provided in Section 60030(a), Title 17, California Code of Regulations.

(e) 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 Section 94502(a) 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 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.

(f) In granting an exemption for a product the Executive Officer shall establish conditions that are enforceable. These conditions shall include the VOC content of the innovative product, dispensing rates, application rates and any other parameters determined by the Executive Officer to be 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.

(g) 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.

(h) 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 provided in this subsection (h), shall have no force and effect as of the effective date of the modified VOC standard. This subsection (h) shall not apply to those innovative products which have VOC emissions less than the appropriate lowered VOC standard and for which a written notification of the product's 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.

(i) If the Executive Officer believes that an antiperspirant or deodorant 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 modify or revoke the exemption as necessary to assure that the product will meet these criteria. The Executive Officer shall not modify or revoke an exemption without first affording the applicant an opportunity for a public hearing held in accordance with the procedures specified in Title 17, California Code of Regulations, Division 3, 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.

94504. Administrative Requirements

(a) Labeling.

(1) No later than three months after the effective date of this article, each manufacturer of an antiperspirant or deodorant subject to this article shall clearly display on each container of antiperspirant or deodorant, 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.

(2) Location of Labeling Information: The date or date-code information required by subsection (a)(1) shall be located in the container so that it is readily observable without disassembling any part of the container or packaging.

(3) Defacing of Containers: No person shall erase, alter, deface or otherwise remove or make illegible any date or date-code from any regulated product container without the express authorization of the manufacturer.

(b) Reporting.

(1) ~~No later than March 1 of every year,~~ Upon 90 days written notice each manufacturer subject to this article shall submit to the Executive Officer ~~a written report. The report shall describe how the manufacturer will meet the requirements of Section 94502.~~

~~(2) The report submitted pursuant to subsection (b)(1) shall include~~ the following information:

(A) the brand name for each antiperspirant or deodorant product;

(B) the owner of the trademark or brand name;

(C) the product forms (aerosol, pump, liquid, solid, etc.);

(D) the California annual sales in pounds per year and the method used to calculate California annual sales;

(E) the total VOC (as defined in Section 94501(m)) content in percent by weight which: (a) has a vapor pressure of 2.0 mm Hg or less at 20^{o} C, or (b) consists of more than 10 carbon atoms, if the vapor pressure is unknown;

(F) the total HVOC and MVOC content and type (as defined in Section 94502(a)) in percent by weight~~.~~ ;

(G) the percent by weight of VOC, water, solids, propellant, and any compounds that are exempt from the definition of VOC specified in section 94501;

(3H) ~~Upon 90 days written notice, the Executive Officer may also require the manufacturer to supply~~ any additional information necessary to determine volatile organic compound emissions from any antiperspirant or deodorant products~~. that the Executive Officer may specify.~~

(~~4~~ 2) All information submitted by manufacturers pursuant to Section 94504(b) 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.

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. 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. Information submitted to the Executive Officer by a variance applicant may be claimed as confidential, and such information shall be handled in accordance with the procedures specified in Title 17, California Code of Regulations, Sections 91000-91022. The Executive Officer may consider such confidential information in reaching a decision on a variance application. 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) 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 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.

94506. Test Methods

(a)(1) Testing to determine the volatile organic compound of an antiperspirant or deodorant, or to determine compliance with the requirements of this article, shall be performed using Air Resources Board Method 310, Determination of Volatile Organic Compounds (VOC) in Consumer Products, adopted September 25, 1997 and as last amended on (date), which is incorporated herein by reference. Alternative methods which are shown to accurately determine the concentration of VOCs in a subject product or its emissions may be used upon approval of the Executive Officer.

(2) In sections 3.5 and 3.7 of Air Resources Board (ARB) Method 310, a process is specified for the “Initial Determination of VOC Content” and the “Final Determination of VOC Content”. This process is an integral part of testing procedure set forth in ARB Method 310, and is reproduced below:

Sections 3.5 and 3.7 of Air Resources Board Method 310

3.5 Initial Determination of VOC Content. The Executive Officer will determine the VOC content pursuant to sections 3.2 and 3.3. Only those components with concentrations equal to or greater than 0.1 percent by weight will be reported.

3.5.1 Using the appropriate formula specified in section 4.0, the Executive Officer will make an initial determination of whether the product meets the applicable VOC standards specified in ARB regulations. If initial results show that the product does not meet the applicable VOC standards, the Executive Officer may perform additional testing to confirm the initial results.

3.5.2 If the results obtained under section 3.5.1 show that the product does not meet the applicable VOC standards, the Executive Officer will request the product manufacturer or responsible party to supply product formulation data. The manufacturer or responsible party shall supply the requested information. Information submitted to the ARB Executive Officer may be claimed as confidential; such information will be handled in accordance with the confidentiality procedures specified in Title 17, California Code of Regulations, sections 91000 to 91022.

3.5.3 If the information supplied by the manufacturer or responsible party shows that the product does not meet the applicable VOC standards, then the Executive Officer will take appropriate enforcement action.

3.5.4 If the manufacturer or responsible party fails to provide formulation data as specified in section 3.5.2, the initial determination of VOC content under this section 3.5 shall determine if the product is in compliance with the applicable VOC standards. This determination may be used to establish a violation of ARB regulations.

3.7 Final Determination of VOC Content. If a product's compliance status is not satisfactorily resolved under sections 3.5 and 3.6, the Executive Officer will conduct further analyses and testing as necessary to verify the formulation data.

3.7.1 If the accuracy of the supplied formulation data is verified and the product sample is determined to meet the applicable VOC standards, then no enforcement action for violation of the VOC standards will be taken.

3.7.2 If the Executive Officer is unable to verify the accuracy of the supplied formulation data, then the Executive Officer will request the product manufacturer or responsible party to supply information to explain the discrepancy.

3.7.3 If there exists a discrepancy that cannot be resolved between the results of Method 310 and the supplied formulation data, then the results of Method 310 shall take precedence over the supplied formulation data. The results of Method 310 shall then determine if the product is in

compliance with the applicable VOC standards, and may be used to establish a violation of ARB regulations.

(b) Testing to determine compliance with the requirements of this article may also be demonstrated through calculation of the volatile organic compound content from records of the amounts of constituents used to make the product. Compliance determination based on these records may not be used unless the manufacturer of a consumer product keeps accurate records for each day of production of the amount and chemical composition of the individual product constituents. These records must be kept for at least three years.

(c) No person shall create, alter, falsify, or otherwise modify records in such a way that the records do not accurately reflect the constituents used to manufacture a product, the chemical composition of the individual product, and any other tests, processes, or records used in connection with product manufacture.

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

94506.5 Federal Enforceability

For purposes of federal enforceability of this article, the Environmental Protection Agency is not subject to approval determinations made by the Executive Officer under Sections 94503.5, 94505, or 94506. Within 180 days of a request from a person who has been granted an exemption or variance under Section 94503.5 or 94505, an exemption or variance meeting the requirements of the Clean Air Act shall be submitted by the Executive Officer to the Environmental Protection Agency for inclusion in the applicable implementation plan approved or promulgated by the Environmental Protection Agency pursuant to Section 110 of the Clean Air Act, 42 U.S.C., Section 7410. Prior to submitting an exemption granted under Section 94503.5 as a revision to the applicable implementation plan, the Executive Officer shall hold a public hearing on the proposed exemption. 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 the Environmental Protection Agency, every person who requests such notice, and to any person or group of persons whom the Executive Officer believes may be interested in the application. Within 30 days of the hearing the Executive Officer shall notify the applicant of the decision in writing as provided in Section 94503.5(f). The decision may approve, disapprove, or modify an exemption previously granted pursuant to Section 94503.5.

NOTE: Authority cited: Section 39600, 39601, 39602, and 41712, Health and Safety Code. Reference: Sections 39002, 39600, 39602, 40000, and 41712, Health and Safety Code.