

August 27, 2004

Ms. Dorothy Shimer
Staff Air Pollution Specialist
Research Division
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Re: Comments on Draft Report on Indoor Air Pollution in California

Dear Ms. Shimer:

The International Sanitary Supply Association (ISSA) thanks the California Air Resources Board (ARB) for this opportunity to comment on the Draft Report on Indoor Air Pollution in California.

ISSA is a non-profit trade association comprised of over 4,600 member companies worldwide, over 300 of which are located in the state of California. Our membership is composed primarily of manufacturers and distributors of institutional and industrial use cleaning products. Our members' products are marketed to hospitals and other healthcare facilities, hotels, schools, day care centers, food and beverage processing plants, restaurants, and a host of other institutional and industrial establishments to maintain sanitary and healthful conditions in the indoor environment. Our comments on the draft report are restricted to those sections that address cleaning products and practices.

COMMENTS

1. Page 3—Table ES-1.

A. ISSA objects to the general characterization of cleaning agents as a major source of indoor pollutants and urges ARB to amend the draft report by deleting reference to cleaning products as such for the following reasons:

1. Cleaning products in general represent a minor source of the organic chemicals listed in the "Pollutants" column;
2. In general, health effects associated with exposure to chemicals in cleaners generally occur at much greater concentrations than would be expected from the proper use of these products;
3. Cleaning product formulations have improved significantly in terms of their general health and environmental profiles due to dramatically lowered VOC content due to CARB VOC limitations, and the general trend in "greening" product formulations; and

4. It is well documented that proper cleaning and maintenance activities are one of the most effective ways of achieving a high level of indoor environmental quality as well as protecting human health. To characterize all cleaning products as a “major source” of indoor pollutants can only have a chilling effect on cleaning practices resulting in reduced cleaning operations, and a deterioration in the quality of the indoor environment. This chilling effect can only be exacerbated by the complete absence of any reference in the draft report to the fact that general routine cleaning practices have a positive and substantial impact on the quality of the indoor environment.

B. We encourage ARB to realign the entries in Table ES-1 consistent with the prioritization of indoor sources of air pollutants as depicted in Table ES-3 (p.17) and Table 6.1 (p. 124), with the amendment

C. ISSA recommends that Table ES-1 be amended such that the entry for “biological agents” includes viruses in this category as well. Viruses are mentioned elsewhere in the draft report as biological contaminants (see p. 8 for example), therefore, it would be appropriate to list viruses in Table ES-1 as well.

2. Pages 5, 18, 34, 54, 124-125, etc.—Terpenes and d-limonene

A. The draft report clearly gives the false impression that terpenes, including d-limonene, are carcinogenic. (See page 18: “Reformulation of other products, such as cleaning agents to remove terpenes could go far to reduce irritant and carcinogenic effects.”; see also page 125) Such references to terpenes being carcinogenic should be deleted from the report as inaccurate. Terpenes and d-limonene are not listed as a carcinogen by the National Toxicology Program or the International Agency for the Research on Cancer. Moreover, these substances are not on the California Proposition 65 list, and are not currently under review to be on the Proposition 65 list. Therefore we respectfully request that such references to terpenes, including d-limonene, as carcinogenic be stricken from the report.

B. We also object to the characterization of terpenes and d-limonene throughout the draft report as irritants and indoor air pollutants, with the suggestion that eliminating these substances from cleaning product formulations is the optimal solution (see pages 5 and 34-35). According to the draft report at page 35, “Pollutants with reactive double bonds such as terpenes and alkenes react with ozone and nitrogen oxides to produce airway irritation similar to that of formaldehyde. Fan *et al.* (2003) confirmed the reaction of ozone with d-limonene and ozone with pinene to generate formaldehyde and ultrafine particles.”

This statement standing alone is misleading because it provides the reader with the clear impression that eliminating these ingredients from a product’s formulation is the optimal solution when in fact that may not be the case. The draft report is deficient because it fails to reference a key conclusion by Fan *et al.* (2003): that it is even more crucial to reduce outdoor ozone levels or to minimize unimpeded penetration of ozone from the outdoors to control the formation of irritants in the indoor environment. Thus, it would

appear that the referenced study's authors would concur that controlling outdoor ozone is a preferred control method to reformulation by eliminating terpenes such as d-limonene.

In fact ARB references d-Limonene in several "example complying formulas" as a preferred ingredient to use in reformulating cleaning products for the purpose of complying with the ARB Consumer Product Regulations (see Draft March 18, 2004 issued by ARB). Thus, ARB has determined that d-Limonene can help reduce outdoor ozone through its use in certain formulations, which Fat *et al.* deems to be the more crucial element in controlling indoor irritants. This scenario begs the question: If we reformulate by eliminating d-Limonene, do we not risk controlling the outdoor ozone to the detriment of the indoor environment?

By ignoring some of Fat *et al.*'s major conclusions, the draft report overly simplifies the solution, and clearly leaves open the possibility of exacerbating the problem of indoor air quality. ISSA requests that ARB take notice of these conclusions in its draft report and reconsider its suggested reformulation of cleaning products by eliminating d-limonene.

3. Pages 8, 63—Biological Contaminants

We agree with the draft report's characterization of biological contaminants as a significant source of indoor air pollution that can have a substantial impact on the health of a building's occupants. (See pages 8 and 63). However, ISSA has the following recommendations regarding biological contaminants:

A. ISSA urges ARB to include biological contaminants as a major source of indoor pollutants in Tables ES-1 (p. 17) and 6.1 (p.124) primarily because of the well documented substantial impact they can have on human health and their prevalence in many indoor environments.

B. Consistent with this recommendation, we strongly encourage ARB to amend Section 5.5 in Chapter 5 (Methods to Prevent and Reduce Indoor Air Pollution), the top of page 16 in the Executive Summary, and page 18-19 (Options to Mitigate Indoor Air Pollution) to include a section that emphasizes the importance of routine cleaning and maintenance in removing harmful biological contaminants from the indoor environment.

As presently drafted, Section 5.5 and page 16 of the Executive Summary emphasize cleaning and maintenance in the context of HVAC systems. While maintenance of HVAC systems are important, the crucial role played by general cleaning and maintenance operations in maintaining the quality of the indoor environment goes far beyond HVAC systems.

Cleaning and maintenance operations throughout a building's interior are crucial to removing unwanted biological and other contaminants, thereby reducing the potential for serious health risks. It is imperative that ARB recognizes the positive impact that routine cleaning and maintenance practices have on the indoor environment by including reference to the same in the draft report.

We believe that this is especially important in the context of schools where it has been established that cleaning and maintenance, when consistently implemented, can lead to measurable environmental improvements and better student and teacher health and performance. (See Indoor Air Quality and Student Performance, EPA, Aug. 2003; and CHPS Best Practice Manual Volume IV-M&O, Cleaning Practices and Products, July 2004.)

4. Pages 11, 12 and 100—ARB Consumer Products Program

ISSA believes that the draft report downplays the significant impact that ARB Consumer Products Regulations have had on the formulations of cleaning products. The draft report simply states that the ARB regulations “...have likely reduced personal exposures to those VOCs.” We encourage ARB to modify this language to reflect the fact that the ARB Consumer Products Regulations have significantly reduced VOC emissions from cleaning products and consequently have also significantly reduced indoor exposure to VOCs as well.

While the ARB Consumer Product Regulations establish VOC limitations out of concern with formation of ozone in the outdoor air, there can be no denying that a collateral effect of these regulations has been to lower human exposure to such substances in the indoor environment. The ARB Consumer Product Regulations cover a vast spectrum of institutional and consumer cleaning products including: air fresheners, automotive rubbing and polishing compounds, automotive waxes and polishes, automotive windshield washer fluids, bathroom and tile cleaners, bug and tar removers, carpet and upholstery cleaners, dusting aids, floor polishes and waxes, floor wax strippers, furniture maintenance products, general purpose cleaners, general purpose degreasers, glass cleaners, heavy duty hand cleaners, insecticides, insect repellants, laundry prewash and starch products, metal polishes and cleaners, oven cleaners, paint removers and strippers, and spot removers.

In fact it is difficult to think of a cleaning product that has not been regulated under the ARB Consumer Product Regulations, yet ARB is at this very moment exploring ways in which it can further reduce VOC emissions from these products. Over the years that these regulations have been in effect, they have resulted in substantial reductions in VOC content and emissions, resulting in a significant reduction in indoor exposure to VOCs that are emitted by cleaning products.

5. Pages 17 and 124—Prioritization of Pollutant Sources for Mitigation

ISSA recommends that Tables ES-3 (p. 17) and 6.1 (p. 24) be amended as follows:

A. We recommend that “Consumer Products” be removed from the tables because:

1. Cleaning products in general represent a minor source of the “toxic air pollutants” listed in the second column in association with cleaning products.

2. In general, the health effects associated with exposure to chemicals in cleaners generally occur at much greater concentrations than would be expected from the proper use of these products;
3. Cleaning product formulations have improved significantly in terms of their general health and environmental profiles due to dramatically lowered VOC content due to CARB VOC limitations, and the general trend in “greening” product formulations. Both of these forces will continue to improve the health and environmental profiles of cleaners precluding the need for additional regulation or action.
4. It is well documented that proper cleaning and maintenance activities are one of the most effective ways of achieving a high level of indoor environmental quality as well as protecting human health. To tar all cleaning products with the label of a toxic indoor pollutant can only have a chilling effect on cleaning practices resulting in reduced cleaning operations, and a deterioration in the quality of the indoor environment. This chilling effect can only be exacerbated by the complete absence of any reference in the draft report to the fact that general cleaning practices have a positive and substantial impact on the quality of the indoor environment.

In addition, ISSA recommends that reference to cleaning products as a priority pollutant be removed from pages 18 and 125-126 for the reasons stated above.

B. We object to the characterization of terpenes as being toxic air pollutants and request that ARB remove terpenes from Tables ES-3 and 6.1. The draft report defines toxic air pollutants as “...pollutants identified as Toxic Air Contaminants (TACs) by the California Air Resources Board, and/or identified by as Proposition 65 chemicals; or criteria (traditional) air pollutants. Terpenes are not identified by CARB as a TAC, they are not listed under Proposition 65 and are not a criteria air pollutant. Therefore, the characterization of terpenes as a toxic air pollutant is inaccurate, and should be corrected by removing the substance from any and all reference in the aforementioned tables.

6. Pages 18, 118 and 127—General Mitigation Options

Among other things, the draft report recommends that manufacturers of consumer products including cleaning products conduct emission testing on their products (see pages 18 and 127). ISSA believes that such a requirement is not necessary because cleaning products’ VOC emissions are already extensively regulated by ARB. Additional emissions testing would only be redundant and unnecessary in light of current ARB Consumer Product Regulations.

The draft report also recommends reformulation of cleaning products as an option at p. 118. We question the validity of additional regulations that would require reformulation in light of the current ARB Consumer Product Regulations. Pursuant to these regulations manufacturers have already conducted significant reformulation and will continue to do so for the foreseeable future resulting in a dramatic reduction in VOC emissions from cleaning products. ISSA believes that it would be inefficient and unreasonable to place

yet another layer of regulations requiring additional reformulation, in light of the advances and progress made to date.

7. Pages 19 and 130—Mitigating Indoor Pollution in Schools

ISSA agrees that mitigating indoor pollution in schools is of primary importance. In this regard, the draft report references the CHPS *Best Practices Manual* as setting forth workable solutions that would effectively address indoor pollution in schools. ISSA agrees with the draft report but encourages it to be more specific in its references.

Specifically the CHPS *Best Practices Manual* specifically recognizes cleaning as one of the most effective means of achieving a high level of environmental quality in school. “Studies have shown that cleaning and maintenance, and restoration when consistently implemented are cost effective and can lead to measurable environmental improvements and better student and teacher performance.” (See CHPS Best Practices Manual, Volume IV-M&O, July 2004.)

In this regard, we encourage ARB to revise the draft report to make specific reference to the valuable role routine cleaning and maintenance procedures (above and beyond HVAC maintenance) play in mitigating indoor pollution in schools. The value of cleaning as a powerful tool in improving the indoor environment is often overlooked and cleaning operations are often the first victim of budget constraints. Therefore it is imperative that the draft report emphasize the crucial role cleaning plays in removing harmful biological and other contaminants from the indoor environment.

CONCLUSION

ISSA and its membership thank you for this opportunity to comment on the draft report. We believe that the adoption of our comments will help ensure that proper cleaning practices and products are recognized as an important tool that can be used to significantly improve the quality of the indoor environment. Please do not hesitate to contact us if additional clarification of our comments is needed, or if we can be of any further assistance

Respectfully submitted,



William C. Balek
Director of Legislative Affairs
International Sanitary Supply Association
Lincolnwood, IL 60712
800-225-4772
bill@issa.com