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VIA ELECTRONIC SUBMISSION
Joe Calavita
Manager, Consumer Products Implementation Division
California Air Resources Board
Sacramento, CA 95812-0806
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RE: **Comments on California Air Resource Board Initial Statement of Reasons (ISOR) for the Proposed Amendments to the Consumer Products Regulation for VOC Limits Posted on February 2, 2021 in anticipation of the Public Hearing on March 25, 2021**

Dear Mr. Calavita:

Unilever United States Inc. is pleased to offer comments on the California Air Resources Board (CARB) Initial Statement of Reasons (ISOR) for the proposed amendments to the Consumer Products Regulation for VOC limits posted to the CARB website on February 2, 2021 in anticipation of the Public Hearing on March 25, 2021.

Unilever is one of the world's largest consumer product companies – our personal care, foods and home care brands have been trusted the world over since 1890. Our personal care products include many leading brands in the United States, such as Axe®, Caress®, Degree®, Dove®, Dove® Men+Care, Love Beauty and Planet®, Nexxus®, Noxzema®, Pond's®, TRESemmé®, and Vaseline®.

We thank CARB for seeking input from a diverse group of stakeholders and CARB's willingness to work with these stakeholders during the regulatory development process to ensure effectiveness of achieving better air quality and public health through innovation of products with lower VOC (Volatile Organic Carbon) emissions.

## 1. General Comments

Unilever appreciates and supports CARB's proposed VOC standards for Hair Finishing Spray, No Rinse Shampoo (Dry Shampoo), Hair Shine, Temporary Hair Color, and Personal Fragrance Products (PFPs) as proposed on July 28, 2020.

Unilever also supports CARB's "Proposed Technology Assessment of the 2031 Standard," which was presented in the November 10, 2020 Public Workshop. Unilever supports that CARB will conduct another full technical assessment of the 2031 standard to determine if the 50% VOC standard for PFPs with less than or equal to 10% fragrance will be technically and economically feasible. We appreciate that CARB is aware that this standard is a challenge to industry and are willing to assess its feasibility. This technical assessment will require manufacturers to conduct a survey of all potentially impacted products for 2025, and we request an additional 3 months to conduct this survey, changing the deadline to June 30, 2026.

2. **Sunset of 2% Fragrance Exemption**

In the ISOR, CARB reiterated its intent to eliminate the 2% Fragrance Exemption, but previously has expressed a willingness to consider retaining a portion of the exemption for certain low VOC categories. We request that CARB reconsider the intention of the exemption for certain personal care product categories with a low VOC limit and include this within the final regulation.

**3. Product Category Definitions**

Unilever supports CARB changing the name of "No-Rinse Shampoo" to "Dry Shampoo." The current proposed definition reads:

*"Dry Shampoo" means a product labeled to be applied to hair and massaged or brushed/combed through the hair for the purpose of cleaning the hair without needing to be rinsed.*

We suggest adding "volumizing" to this definition as an addition to the cleansing benefit, as this is a claim that is traditionally made on 'wet' shampoos and can result from the removal of oil from the hair.

We support the other proposed definitions for the Personal Care product categories, including those for "Hair Finishing Spray," "Personal Fragrance Products," "Hair Shine," and "Hair Styling Product."

**4. Innovative Product Exemption**

Unilever appreciates CARB staff for proposing to amend Section 94511 Innovative Products to include a provision for products utilizing compressed gases. Developing safe and effective products with compressed gases has its challenges and this provision will go a long way to provide options for companies to introduce products with compressed gas propellant systems. This will also enable companies to reduce the use of greenhouse gases (GHG).

We would like to thank and acknowledge CARB's recognition of the challenges presented to products with compressed gas propellant systems by the current methods for determining product compliance with the applicable VOC standards, and that these challenges may inhibit manufacturers from using these types of propellant systems. When manufacturing a compressed gas product, using a simplistic example of replacing the volume taken up by a liquefied non-VOC propellant (such as HFC-152a) with a much lower density compressed gas (such as nitrogen), the percent weight of VOC in the product would increase even if the actual weight of VOC present in the product remains the same. Without the IPE, it would be impossible to manufacture technically feasible and commercially acceptable products based on compressed gas while meeting CARB regulations based on percent weight VOC, even though these

products can be demonstrated to have lower GHG and OFP (Ozone Forming Potential) emissions than the HFC-152a based alternative. Compressed gases are at a severe disadvantage in a regulatory system based on percent weight limits, including those based on only the solvent/propellant content of a product.

We support CARB's Proposed Amendments to the IPE eligibility criteria, particularly for products that utilize a compressed gas propellant system in place of greenhouse gas propellants, such as HFC-152a (specifically for hair finishing sprays, dry shampoos, and personal fragrance products). The amendment encourages product manufacturers to develop and market innovative products with propellant systems that use compressed air, carbon dioxide or nitrogen by allowing product manufacturers to demonstrate that the features of the new product can lead to a decrease in the GWP and OFP compared to a representative product. We support CARB's proposed amendments, as well as the rational within the ISOR, which allows for this. We currently have a nitrogen propellant product in the market that with the proposed IPE we would be able to continue to market, whereas if the IPE language was excluded from the proposed regulation, we would have to remove it from the market in 2023. This product, as well as any other products we would develop, would need to meet consumer expectations in terms of fully using all of the product in the can and minimize residual product that might inhibit recycling.

**5. Suggested Changes to Section 94511 (C)(3) and (C)(4)**

Within the discussion of the rationale for Section 94511 (C)(3) it reads:

> "*This amendment is needed to help ensure that more of the innovative product is used relative to the **innovative** product it replaces so that the proposal does not result in an increase in GWP and OFP. If more of the innovative product must be used than the representative product (for example, if one can of the representative product dispenses as much "Hair Finishing Spray" as one can of the innovative product, the OFP and GHG benefits of staff's proposal would be offset by increased product usage."*

We believe there is an error in the language in the first sentence above and have clarified the second sentence so that it is clearer. We are supportive of what we believe the intent of this section is and for the flexibility it gives to the innovative product exemption process for products that use compressed gas propellant systems. We suggest that the above statement be modified to read as follows:

> *"This amendment is needed to help ensure that the use of the innovative product does not result in an increase in GWP and OFP relative to the representative product it replaces. If more of the innovative product must be used than the representative product (for example, if more than one can of the innovative product is needed to replace one can of the representative product) then the OFP and GHG benefits of staff's proposal may be offset by increased product usage."*

We would like to highlight Section 94511 (C)(4)(A), which reads:

*"(4) The ozone-forming potential of the proposed innovative product does not exceed that of the representative HFC-152a product.*

*(A) Assignment of a substance's Maximum Incremental Reactivity (MIR) value for the purpose of determining a product's ozone forming potential shall be conducted pursuant to subsections 94509(r)(5)(A)- (D) and (F)-(I)."*

We suggest changing the word "substance" to "ROC" (Reactive Organic Compounds) so that it reads:

*"(4) The ozone-forming potential of the proposed innovative product does not exceed that of the representative HFC-152a product.*

*(A) Assignment of a ROC's Maximum Incremental Reactivity (MIR) value for the purpose of determining a product's ozone forming potential shall be conducted pursuant to subsections 94509(r)(5)(A)- (D) and (F)-(I)."*

This change would make it clear that only the MIR of ROC will be used in determining the ozone-forming potential of the proposed innovative products, and not non-reactive compounds.

**6. Challenges with Formulating with HFO 1234ZE Propellant**

We believe that some products using HFO 1234ZE may already be able to be formulated under the existing VOC based regulations; however, the many challenges with formulating with HFO 1234ZE propellant were discussed in our comment letter dated December 6, 2019. These challenges include product compatibility and performance, as well as supply change challenges caused by the single supplier of this propellant. To reiterate, HFO 1234ZE is not the solution for all types of aerosol products.

**7. Non-Recurring Cost Estimates**

We would like to note that the estimated non-recurring cost estimates found in Appendix E (Table E-1), and seen below, are very low for reformulating products.

**Table E-1:**
**Total Nonrecurring Cost per Product Formulation**
**Based upon the Chemical Engineering Plant Cost Index Methodology[1]**

| | Low Cost | High Cost |
|---|---|---|
| Manual Aerosol Air Freshener | $18,159 | $189,830 |
| Hair Finishing Spray | $14,628 | $133,335 |
| Dry Shampoo | $14,628 | $133,335 |
| Hair Shine | $14,628 | $133,335 |
| Temporary Hair Color | $14,628 | $133,335 |
| Personal Fragrance Products | $14,628 | $133,335 |
| Aerosol Crawling Bug Insecticide | $19,334 | $185,631 |

As seen in Table-1, the estimated non-recurring costs can range from $14,628-$133,335 for personal care products. However, artwork alone per product may range from $2,000-$8,000 per SKU (Stock Keeping

Unit), and then there are additional costs for product reformulation, stability and efficacy studies, consumer safety assessments, capital investment for changes in manufacturing, validation testing, just to name a few. Even the high estimates included in this table are low.

8. **Use of Maximum Incremental Reactivity (MIR) in Regulating OFP of Personal Care Products**

As presented in our letters dated December 6, 2019 and April 3, 2020, Unilever supports an MIR-based approach to measure the OFP of personal care products, as an alternative to limits on VOC content. Using a reactivity-based approach as an alternative to VOC targets is a proven approach and it would provide increased flexibility to product formulators to develop new formulations to attain known reduction of smog generation potential in consumer products, while minimizing the use of greenhouse gases, such as HFC-152a. We also hope to continue conversations with CARB on additional IPE provisions that would allow for improved products that can be justified based on lower OFP and GWP.

9. **Proposed Toxics Prohibition**

In the ISOR, CARB has proposed to prohibit the use of parachlorobenzotrifluoride, methylene chloride, perchloroethylene, and trichloroethylene in hair care and personal fragrance products. We have no objection to this prohibition.

We are appreciative of CARB's willingness to work collaboratively with industry so that we can work together to achieve our air quality goals through product innovation. Unilever appreciates the opportunity to provide these comments and we look forward to future dialogue on the proposed VOC limit regulations. We look forward to the opportunity to work with CARB on developing guidance for how to implement the IPE process for products with compressed gas propellant systems industry-wide.

Respectfully Submitted,

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