



February 27, 2023

Senate Committee on Energy and the Environment
Oregon State Legislature

Re: OR SB 546

Dear Chair Sollman and Committee Members:

We are writing with scientific information relevant to SB 546: Relating to chemicals used in cosmetic products. We are scientists at Silent Spring Institute, an independent non-profit research organization that investigates links between everyday chemicals and public health. We have an active research program on consumer product chemical exposures, which includes identifying and addressing exposure inequities.

Many everyday products contain chemicals of health concern that are the focus of this bill. About a decade ago, we published the first-ever peer-reviewed scientific article summarizing testing results for over 200 everyday products.¹ We tested cosmetics and other products, and found orthophthalates, along with other endocrine disrupting chemicals, in lipsticks and foundations and other commonly used products. It is important to keep in mind that people do not use one product at a time; use of multiple products containing multiple orthophthalates means that exposures are adding up.

We followed this product testing study with tests of hair products used by Black women and found orthophthalates in hair oils, root stimulators, hair lotions, and hair relaxer kits.² Some of the highest levels were found in products marketed to children. Orthophthalates are associated with various health outcomes including premature breast development in girls; impaired reproductive development in boys; metabolic issues such as diabetes and obesity; thyroid function and thyroid cancer risk; preterm birth and low birth weight.^{3,4}

More recently we have been researching beauty product use among Black women and Latinas living in California as part of the community-based Taking Stock Study.⁵ We asked women to log their product

¹ Dodson RE, Nishioka M, Standley LJ, Perovich LJ, Brody JG, Rudel RA. Endocrine disruptors and asthma-associated chemicals in consumer products. *Environ Health Perspect*. 2012 Jul;120(7):935-43.

² Helm JS, Nishioka M, Brody JG, Rudel RA, Dodson RE. Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women. *Environ Res*. 2018 Aug;165:448-458.

³ Hauser, R. and Calafat, A.M., Phthalates and human health. *Occup Environ Med*. 2005; 62(11): p.806-18.

⁴ Wang, Y. and Qian, H., Phthalates and Their Impacts on Human Health. *Healthcare (Basel)*. 2021; 9(5).

⁵ Dodson RE, Cardona B, Zota AR, Robinson Flint J, Navarro S, Shamasunder B. Personal care product use among diverse women in California: Taking Stock Study. *J Expo Sci Environ Epidemiol*. 2021 May;31(3):487-502.

use and take photos of the ingredient lists on their products. From our preliminary analyses, we can share that our study participants are using products with formaldehyde releasing agents like DMDM hydantoin listed as ingredients. This includes daily use products like shampoos, body lotions, and facial creams. And one study participant reported using an eyelash glue with formaldehyde listed as an ingredient. Formaldehyde is classified as a known human carcinogen by the International Agency for Research on Cancer and the US National Toxicology Program, and a probable human carcinogen by the EPA, because it's linked to cancer in both animal and human studies.

Exposures to consumer product chemicals are not the same for everyone. Data from CDC's national biomonitoring program – known as NHANES – shows that Non-Hispanic Black people have higher levels of many consumer product chemicals in their bodies compared to other racial/ethnic groups.⁶ For example, the average level of mono ethyl phthalate or MEP, a metabolite of an orthophthalate found in beauty products, is two times higher among Non-Hispanic Blacks compared to Non-Hispanic whites.

Consumer product use leads to higher body burdens. Our research, and research by others, shows that the more products a person uses the higher their body burden.⁷ In our Taking Stock Study, we observed higher MEP levels among women who reported using higher than average number of products compared to women who used few products.

Finally, I'd like to comment on some other chemicals found commonly in personal care products that are covered by this bill. Epidemiological and animal studies have shown associations between bladder and breast cancers and use of hair dyes, particularly dark hair dyes, which often contain phenylenediamines, chemicals that SB 546 addresses. Maternal use of hair dyes has been associated with childhood cancers.⁸ What's more, p-phenylenediamine is mutagenic⁹ and increases the production of estrogen and progesterone in human cells,¹⁰ further supporting the potential for these chemicals to increase risk of cancer and endocrine-related health effects.

And last, but certainly not least, PFAS. A recent study detected total fluorine, an indicator for the presence of PFAS, in over half of popular cosmetics products sold in the U.S. and Canada.¹¹ The toxicity of PFAS chemicals is well established. PFAS are associated with increased risks of cancer of the kidneys,

⁶ Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. National Report on Human Exposure to Environmental Chemicals. Updated March 2022. Accessed February 20, 2023. <https://www.cdc.gov/exposurereport/>

⁷ Dodson RE, Boronow KE, Susmann H, Udesky JO, Rodgers KM, Weller D, Woudneh M, Brody JG, Rudel RA. Consumer behavior and exposure to parabens, bisphenols, triclosan, dichlorophenols, and benzophenone-3: Results from a crowdsourced biomonitoring study. *Int J Hyg Environ Health*. 2020 Sep;230:113624.

⁸ IARC monograph 99, 2010, Some Aromatic Amines, Organic Dyes, and Related Exposures Volume 99, *in* IARC Monographs on the Identification of Carcinogenic Hazards to Humans. World Health Organization, International Agency for Research on Cancer: Lyon, France.

⁹ NCI, 2018, Chemical Carcinogenesis Research Information System <https://www.nlm.nih.gov/databases/download/ccris.html>

¹⁰ Cardona, B. and Rudel, R.A., *Application of an in vitro Assay to Identify Chemicals That Increase Estradiol and Progesterone Synthesis and Are Potential Breast Cancer Risk Factors*. *Environ Health Perspect*. 2021; 129(7): p.77003.

¹¹ Heather D. Whitehead, Marta Venier, Yan Wu, Emi Eastman, Shannon Urbanik, Miriam L. Diamond, Anna Shalin, Heather Schwartz-Narbonne, Thomas A. Bruton, Arlene Blum, Zhanyun Wang, Megan Green, Meghanne Tighe, John T. Wilkinson, Sean McGuinness, and Graham F. Peaslee. Fluorinated Compounds in North American Cosmetics. *Environmental Science & Technology Letters* 2021 8 (7), 538-544.

testes, prostate, breast, liver, and ovaries; liver damage; decreased immune function; and reproductive concerns such as pre-eclampsia and low birth weights.¹²

The research clearly shows that frequently used beauty products contain chemicals linked to adverse health outcomes and that exposures can be higher for women of color and children. We hope you take this research into account as you consider this bill.

Respectfully submitted,



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¹² Fenton, S.E., et al., Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research. Environ Toxicol Chem. 2021; 40(3): p.606-630.