

January 2, 2025

Robin Christensen  
Deputy Director, Safer Consumer Products Program  
Department of Toxic Substances Control  
P.O. Box 806  
Sacramento, CA 95812-0806

**Re: Candidate Chemicals in Children's Products – Styrene  
Comments of the Styrene Information & Research Center (SIRC)**

Dear Director Christensen:

The Styrene Information and Research Center, Inc. (SIRC) appreciates the opportunity to provide information to inform the Safer Consumer Products Program's (SCP) ongoing review of the presence of styrene in children's products.

Formed in 1987, SIRC's membership represent the vast majority of the North American styrene manufacturing industry. SIRC's primary mission is to conduct scientific research on the potential human health and environmental effects of styrene and ethylbenzene, and to collect additional research, and analyze, and communicate this information. SIRC serves as the focal point for research and public information on styrene and as a resource for industry, federal and state governments, and international agencies on issues related to the potential impact of exposure to styrene on human health and the environment.

SIRC and its international industry partners have sponsored more than 25 years of research and expert assessments on styrene and potential human color vision, ototoxicity, genotoxicity, cancer epidemiology, rat reproductive toxicity and developmental neurotoxicity. SIRC has also investigated mouse lung tumor MOA, and has performed an assessment of potential endocrine activity and disruption effects.

The SCP's October 2024 Background Document<sup>1</sup> presents a conclusory summary of some of the styrene research. That summary may be sufficient for its limited purpose in the Background Document, but it is not the product of a weight of evidence analysis, and does not take into account the best science and all of the readily available literature. SIRC recently sponsored and published in the peer-reviewed literature an updated comprehensive human health risk assessment for styrene. This study represents a capstone to over 30 years of research and to update a 2002 styrene risk assessment also sponsored

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<sup>1</sup> DTSC, BACKGROUND DOCUMENT ON PHTHALATES, STYRENE, AND FORMALDEHYDE IN CHILDREN'S PRODUCTS (Oct., 2024).

by SIRC and conducted at Harvard University. The current study presents a comprehensive review and assessment of the relevant hazard and exposure evidence in the styrene literature, including with respect to children.

- Banton, M.I., et al. (2019). Evaluation of potential health effects associated with occupational and environmental exposure to styrene – an update. *Journal of Toxicology and Environmental Health, Part B.* 22, NOS. 1–4, 1–130 <https://doi.org/10.1080/10937404.2019.1633718>

This study is already cited in SCP's Background Document. We encourage SCP to review it and the evidence it provides completely before attempting again to characterize what is known about the health effects of styrene exposure.

#### Studies on Potential Effects of Chronic, Low-Level Exposure to Styrene on Children's Health

Banton M.I., et al. (2019) provides an assessment of children's exposure to styrene through mouthing of styrene polymer toys. This information indicates that the residual styrene content in styrene derived polymer toys is significantly below levels of concern.<sup>2</sup>

In addition, DTSC should be aware of two studies commissioned by SIRC to address uncertainties about styrene exposure and potential reproductive/developmental toxicity and effects on children's health.

- Cruzan, G., et al. (2005) Two Generation Reproduction Study of Styrene by Inhalation in Crl-CD Rats. *Birth Defects Research (Part B).* 74:211-220. <https://doi.org/10.1002/bdrb.20041>
- Cruzan, G., et al. (2005) Developmental Neurotoxicity Study of Styrene by Inhalation in Crl-CD Rats. *Birth Defects Research (Part B).* 74:221-232. <https://doi.org/10.1002/bdrb.20042>

Thank you for considering our literature suggestions. If you have any questions, please contact me.

Sincerely,



Ray Ehrlich  
Executive Director  
Styrene Information & Research Center

(W) 202-787-5997

[ray.ehrlich@styrene.org](mailto:ray.ehrlich@styrene.org)

[www.styrene.org](http://www.styrene.org)



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<sup>2</sup> See Banton, M.I., et al. (2019) at, e.g., 89-90, 92, 95-97 (and Table 14), and page 99 (and Table 16).

