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Department of Toxic Substances Control (DTSC)
California Environmental Protection Agency

RE: Environmental Working Group Comments on Background Document for DTSC's 2025 microplastics in consumer products research

The Environmental Working Group (EWG) strongly supports the Department of Toxic Substances Control's efforts towards advancing groundbreaking research on microplastics in consumer products, considering microplastics-containing consumer goods as potential Priority Products, and developing science-based measures to mitigate and prevent plastic pollution as a source of potential exposure to microplastics for people and the environment.

EWG is a nonprofit public health and environmental research and advocacy organization with offices in Sacramento, Minneapolis, and Washington, D.C. EWG's research focuses on understanding health risks from chemical contamination of water, food, consumer products and the environment, supporting a healthy indoor and outdoor environment for all communities.

In order for the DTSC to develop policy options for protecting public health from plastic particle exposure, it is essential to start with a detailed assessment of the presence of primary microplastics intentionally added to consumer products. The DTSC must also consider any potential secondary microplastics release and exposure, as applicable under the California Safer Consumer Product Program.

This necessary research will represent an important step forward in protecting all Californians, especially children, from exposures to microplastics and any potential health harms that may come from such exposures. It would also boost efforts to address the health harms of chemical additives that can potentially leach from microplastics.[1]

[1] United Nations Environment Programme and Secretariat of the Basel, Rotterdam and Stockholm Conventions (2023). Chemicals in plastics: a technical report. Geneva. https://wedocs.unep.org/items/6b43b0c2-a15c-4edb-9b1f-0d58e00fcfa3

This effort by California is an urgent public health need because a variety of analytical methods have detected plastics in human organs, including brains,[2] placentas,[3] and testes.[4]

Reducing exposure to plastics

There are three main routes of human exposure to microplastics: ingestion, inhalation, and dermal absorption. Humans are at risk of exposure via all three routes to microplastics contained or shed by the products listed in Table 1 of DTSC's Background Document.[5] Ingestion of microplastics is considered the primary route of human exposure with documented evidence of plastic contamination in food sources,[6] drinking water sources[7] and bottled water products.[8]

Humans are highly exposed to microplastics, and children (and pets) are more exposed than adults with more time spent on floors and frequent hand to mouth transfers. It is evident that infants are more exposed by research showing more plastics in infant feces than adults.[9]

Currently, due to the lack of transparency in the marketplace about consumer goods that may expose people to microplastics, the onerous task of taking individual measures for reducing exposure falls on the consumers, but they have limited options. Reducing human exposure through source reduction and plastic pollution prevention should be highly prioritized. Efforts to accomplish this include eliminating single-use plastics and unnecessary plastic in food and consumer product packaging and by encouraging the implementation of reuse systems.

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[2] Nihart, A. J., Garcia, M. A., El Hayek, E., Liu, R., Olewine, M., Kingston, J. D., . . . Campen, M. J. (2025). Bioaccumulation of microplastics in decedent human brains. Nature Medicine, 31(4), 1114-1119. doi:10.1038/s41591-024-03453-1

[3] Jochum, M., Garcia, M., Hammerquist, A., Howell, J., Stanford, M., Liu, R., Olewine, M., Hayek, E. E., Phan, E., Showalter, L., Shope, C., Suter, M., Campen, M., Aagaard, K., & Barrozo, E. (2025). Elevated Micro- and Nanoplastics Detected in Preterm Human Placentae. *Research square*, rs.3.rs-5903715. doi.org/10.21203/rs.3.rs-5903715/v1

[4] Hu, C. J., Garcia, M. A., Nihart, A., Liu, R., Yin, L., Adolphi, N., . . . Yu, X. (2024). Microplastic presence in dog and human testis and its potential association with sperm count and weights of testis and epididymis. Toxicological Sciences, 200(2), 235-240. doi:10.1093/toxsci/kfae060

[5] California Department of Toxic Substances Control. (2025). *Background document on DTSC's microplastics in consumer products research*. https://dtsc.ca.gov/scp/microplastics-in-consumer-products/

[6] Milne, M. H., De Frond, H., Rochman, C. M., Mallos, N. J., Leonard, G. H., & Baechler, B. R. (2024). Exposure of U.S. adults to microplastics from commonly-consumed proteins. Environmental Pollution, 343, 123233. doi.org/10.1016/j.envpol.2023.123233

[7] Zhang, Q., Xu, E. G., Li, J., Chen, Q., Ma, L., Zeng, E. Y., & Shi, H. (2020). A Review of Microplastics in Table Salt, Drinking Water, and Air: Direct Human Exposure. Environmental Science & Technology, 54(7), 3740-3751. doi:10.1021/acs.est.9b04535

[8] Qian, N., Gao, X., Lang, X., Deng, H., Bratu, T. M., Chen, Q., . . . Min, W. (2024). Rapid single-particle chemical imaging of nanoplastics by SRS microscopy. Proceedings of the National Academy of Sciences, 121(3), e2300582121.doi.org/10.1073/pnas.2300582121

[9] Zhang, J., Wang, L., Trasande, L., & Kannan, K. (2021). Occurrence of Polyethylene Terephthalate and Polycarbonate Microplastics in Infant and Adult Feces. Environmental Science & Technology Letters, 8(11), 989-994. doi:10.1021/acs.estlett.1c00559

We agree with the comments submitted by the Natural Resources Defense Council, Breast Cancer Prevention Partners, and Clean Water Action, as well as other public interest organizations on considering the necessity of use of plastics and their alternatives. Replacing plastic with other “plastics” or with other chemicals with health or environmental concerns is not a safer nor sustainable alternative. We should focus instead on reusability of materials over disposability.

Many plastic materials remain necessary for uses such as lifesaving medical equipment and food safety. Continued production of single-use plastic goods and plastic-containing products that are discarded either down the drain or in the waste stream is not sustainable in the long term. If disposable alternatives are proposed, more research is needed on the breakdown pathways and toxicity of the intermediate and terminal compounds with respect to the potential for harm to human and environmental health.

More research on the shedding of food packaging materials and potential toxic exposure is a high priority. One study conducted by Hussain, K. A., et al. showed the release of polypropylene and polyethylene particles from plastic containers and reusable smoothie pouches for children and toxic effects on developing human kidney cells.[10]

Another focus area should include plastic film mulch used in agriculture. EWG scientists recently reviewed the literature on plastics detected in food products sold for human consumption and found that some sources of plastics in food, including produce, are likely from plastic mulch[11] or food processing. We encourage the use of organic alternatives for agriculture mulch until the biodegradable plastic films are thoroughly investigated for food safety.

EWG urges the DTSC to prioritize synthetic textiles because they are a major source of microplastics that shed continuously during use and laundering.[12] These persistent microfibers are mobile throughout the environment and have been detected in wastewater treatment systems, where they can bypass filtration processes. Elevating textiles from the "additional products" list in Appendix A to a Priority Product category is needed to protect California's water resources and reduce the ubiquitous exposure risks.

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[10] Hussain, K. A., Romanova, S., Okur, I., Zhang, D., Kuebler, J., Huang, X., Wang, B., Fernandez-Ballester, L., Lu, Y., Schubert, M., & Li, Y. (2023). Assessing the Release of Microplastics and Nanoplastics from Plastic Containers and Reusable Food Pouches: Implications for Human Health. *Environmental science & technology*, *57*(26), 9782–9792. doi.org/10.1021/acs.est.3c0194

[11] Miao, H., Zhang, S., Gao, W. *et al.* Microplastics occurrence and distribution characteristics in mulched agricultural soils of Guizhou province. *Sci Rep* **14**, 21505 (2024). doi.org/10.1038/s41598-024-72829-7

[12] Akyildiz, S. H., Fiore, S., Bruno, M., Sezgin, H., Yalcin-Enis, I., Yalcin, B., & Bellopede, R. (2024). Release of microplastic fibers from synthetic textiles during household washing. Environmental Pollution, 357, 124455. doi.org/10.1016/j.envpol.2024.124455

Analytical methods

While current analytical tools have successfully documented the presence of microplastics in diverse matrices, from human tissues to drinking water, significant investment is required to refine and standardize these methods for formal regulatory use.

We must move toward robust quantification protocols that can be applied consistently across different product categories, such as food contact materials. Standardizing these evolving techniques will allow DTSC to bridge the gaps identified in its preliminary research and ensure that exposure assessments are based on the most accurate, reproducible science available.

Continuously improving these analytical frameworks is essential to providing the high-quality evidence required to support and implement new regulations. Robust, high-resolution data that can accurately distinguish primary and secondary microplastics across a product's life cycle can provide the necessary weight of evidence to withstand challenges to delay protective actions.

By prioritizing assessment and the advancement of these methods, DTSC will ensure its decisions are scientifically sound and makes the case for plastic use reduction and the designation of microplastic-containing materials and consumer goods as Priority Products an important step forward towards protecting health of Californians from exposures to plastic pollution.

Systematic approach

A systemic approach must recognize that plastic pollution is a critical environmental justice issue, as microplastic releases throughout a product's life cycle disproportionately impact the health of workers, children, and underserved communities.

From manufacturing to disposal, these persistent plastic particles contaminate food, indoor air, and essential water resources. DTSC's concern regarding exposure in workers and children highlights that those with the least control over product formulations often bear the highest burden of environmental contamination. Therefore, DTSC must move beyond managing these pollutants and instead prioritize a regulatory framework that reduces the total chemical and plastic burden on the most vulnerable populations.

To effectively lower exposure, the agency should prioritize absolute plastic use reduction and the elimination of single-use plastics over disposal management. Because microplastics are mobile and ubiquitous, secondary particles from degrading bottles, wrappers, and bags cannot be fully contained once they enter the environment.

By leveraging the move toward non-plastic alternatives — such as glass, stainless steel, or well studied readily biodegradable materials — the Safer Consumer Products Program Program can transition to proactive prevention, stopping pollution at its source.

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EWG appreciates the opportunity to provide these comments and strongly urges the DTSC to move swiftly in designating microplastic-containing materials as Priority Products.

We look forward to supporting the department as it translates this critical research into science-based protections for all Californians.

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