IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
FLORENCE DIVISION

ROBERTA HOLMES, Individually and on Behalf of All Others Similarly Situated,

Plaintiff,

v.

L'ORÉAL USA, INC.; L'ORÉAL USA PRODUCTS, INC.; SOFT SHEEN-CARSON, LLC; SOFT SHEEN/CARSON, INC.; and SOFT SHEEN/CARSON (W.I.), INC.,

Defendant.

Case No. ___-cv-___

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

Plaintiff Roberta Holmes ("Holmes" or "Plaintiff"), individually and on behalf of all others similarly situated, respectfully offers the following for her Complaint against L'ORÉAL USA, INC., L'ORÉAL USA PRODUCTS, INC.; SOFT SHEEN-CARSON, LLC; SOFT SHEEN/CARSON, INC.; and SOFT SHEEN/CARSON (W.I.), INC., ("L'ORÉAL" or "SOFT SHEEN" or "Defendants") and alleges upon personal knowledge as to herself and her own acts and experiences and, as to all other matters, upon information and belief, including investigation conducted by her attorneys.

NATURE OF THE ACTION

1. Plaintiff brings this class action lawsuit on behalf of herself, and all similarly situated consumers ("Class Members") who purchased for normal household use Hair-Straighteners and/or Hair Relaxers products that are defective because they contain chemicals that increase the risk of cancer, and which were formulated, designed, manufactured, marketed, advertised, distributed, and sold by L'ORÉAL and SOFT SHEEN ("Products" or "Defendants'

Products"). The Products include, but are not limited to, Dark & Lovely which was purchased and used by Plaintiff Roberta Holmes. Each of the Products is manufactured, distributed, and sold by the Defendants to consumers across the United States both in retail establishments and online, including in South Carolina where Plaintiff resides.

2. The Products are defective because each contains the presence of chemicals that increase the risk of cancer identified in product testing by the National Institute of Health; yet despite the presence of these chemicals that increase the risk of cancer, Defendants represents that the Products are safe and effective for their intended use.

3. Other manufacturers formulate, produce, and sell non-defective hair straightening products with formulations that do not include the use of chemicals that increase the risk of cancer, evidence that its use in the Defendants' Products is demonstrably avoidable. Feasible alternative formulations, designs, and materials are currently available and were available to Defendant at the time the Products were formulated, designed, and manufactured.

4. At the time of their purchases, Defendants did not notify Plaintiff and similarly situated consumers of the Products' increased risk of cancer through its product labels, the ingredients list, other packaging, advertising, or in any other manner, in violation of state and federal law.

5. For over 100 years, L'ORÉAL has gained the trust of consumers with its products, who reasonably believed that its products, including the defective Products at issue, are made with quality materials, and can be used safely as intended; yet these Products were not safe. Testing of the Products shows them to be adulterated with chemicals that increase the risk of cancer.

6. Because Plaintiff and Class Members purchased worthless and, worse, they purchased and used Products that are dangerous to their health, they have suffered losses. Plaintiff

seeks damages and equitable remedies on behalf of herself and the proposed Classes, defined herein.

PARTIES

A. Plaintiff

7. Plaintiff Roberta Holmes is a resident and citizen of Loris, South Carolina who purchased and used Defendants' Products within the relevant time period.

B. Defendant

8. Defendant L'ORÉAL USA, INC. is incorporated in Delaware with its principal place of business and headquarters located at 575 Fifth Avenue, New York, New York 10017, and process may be served on its registered agent, Corporation Service Company, 80 State Street, Albany, New York 12207. The Products, including the adulterated Products bought by Plaintiff and members of the proposed class, are available at retail stores throughout South Carolina and the United States.

9. Defendant L'ORÉAL USA PRODUCTS, INC. is incorporated in Delaware with its principal place of business and headquarters located at 10 Hudson Yards, 347 10th Avenue, New York, New York 10001, and process may be served on its registered agent, Corporation Service Company, 80 State Street, Albany, New York 12207. The Products, including the adulterated Products bought by Plaintiff and members of the proposed class, are available at retail stores throughout South Carolina and the United States.

10. Defendant SOFT SHEEN-CARSON, LLC, is a limited liability company organized in New York with its principal place of business and headquarters located at 80 State St., Albany, New York 12207, and process may be served on its registered agent, Corporation Service Company, 80 State Street, Albany, New York 12207. Plaintiffs allege that SOFT SHEENCARSON, LLC's members and sole interested parties are L'ORÉAL S.A., a corporation

having its headquarters and principal place of business in France; and L'ORÉAL USA, INC., incorporated in Delaware with its principal place of business and headquarters at 575 Fifth Avenue, New York, New York 10017.

11. Defendant CARSON, INC., d/b/a SOFT SHEEN, is a corporation with its principal place of business and headquarters located at 2870 Peachtree Rd., Suite. 464, Atlanta, Georgia 40405, and process may be served on its registered agent, Justin Hill, 2870 Peachtree Rd., Suite 464, Atlanta, Georgia 40405.

12. Defendant CARSON (W.I.), INC., d/b/a SOFT SHEEN, is a Delaware corporation and process may be served on its registered agent, Corporate Services Company 251 Little Falls Drive, Wilmington, Delaware 19808.

13. Defendants manufactures, markets, advertises, labels, distributes, and sells a variety of hair straighteners and/or relaxers, including but not limited to:

1	Dark & Lovely	Relaxer	Triple Nourished Silkening Relaxer No-Lye
2	Dark & Lovely	Relaxer	Healthy Gloss 5 Shade Shea Moisture No-Lye Relaxer
3	Dark & Lovely	Relaxer	No-Lye Conditioning Relaxer System
4	Dark & Lovely	Relaxer	Healthy Gloss 5 Moisturizing No-Lye Relaxer with Shea Butter
5	Dark & Lovely	Relaxer	Superior Moisture Plus No-Lye Relaxer Kit
6	Dark & Lovely	Relaxer	Moisture Plus No-Lye Relaxer

JURISDICTION AND VENUE

14. This Court has subject matter jurisdiction over this matter pursuant to 28 U.S.C. § 1332 of the Class Action Fairness Act of 2005 because: (1) there are 100 or more putative Class Members, (ii) the aggregate amount in controversy exceeds $5,000,000.00, exclusive of interest and costs, and (iii) there is minimal diversity because Plaintiff and Defendant are citizens of different states. This Court has supplemental jurisdiction over Plaintiff's state-law claims pursuant to 28 U.S.C. § 1367.

15. This Court has personal jurisdiction over Defendants because they have substantial aggregate contacts with this District, including engaging in conduct in this District that has a direct, substantial, reasonably foreseeable, and intended effect of causing injury to persons throughout the United States, and because they purposely availed themselves of the laws of the United States and South Carolina, including in this District, and/or has caused its products to be disseminated in this District.

16. Venue in this district is proper in this Court pursuant to 28 U.S.C. §1391 because Plaintiff Roberta Holmes resides in this District, a substantial part of the conduct giving rise to Plaintiff's claims occurred in this District, Defendants transact business in this District, and has intentionally availed itself of the laws and markets within this District.

FACTUAL ALLEGATIONS

17. L'ORÉAL is well-established for its Hair Straighteners and/or Hair Relaxers products, including its Products at issue here. On its website, L'ORÉAL assures its customers:

> The key to producing world-class products is to source world-class ingredients. We ensure that our cosmetics are totally safe for our consumers by only using ingredients that meet the highest quality standards and that fully comply with regulations.

> We deliver on this commitment by a careful selection of suppliers and a rigorous scientific analysis of raw materials, such as sun filters, hair dyes, palm and mineral oils, and silicones. By quality-checking every step of the way, we can guarantee that safety rhymes with beauty in every sense of the word.[1]

18. L'ORÉAL also assures customers on its website about L'ORÉAL's transparency to its customers as, "L'Oréal is committed to communicating about its products in a transparent and understandable way, to help consumers make responsible choices."[2]

19. Furthermore, regarding endocrine disruptors specifically, L'ORÉAL states on its website:

> **Today we do not use any ingredient defined as an endocrine disruptor by the WHO**, and none of our ingredients cause adverse effects to humans or to environmental health, under the conditions in which we use them: concentration in the finished product, area and frequency of application. **If there is any doubt or scientific evidence of an adverse effect of our ingredients, resulting from interaction with the hormonal system, we remove it from our products.** After 15 years of developing knowledge and robust scientific methods, we have set up an important platform of predictive tests to ensure the safety of our consumers and to protect the environment. **These tests allow us to detect if any ingredients interact with different hormone receptors.**[3]

20. In describing its quality control on its website, L'ORÉAL states:

> At each step, we are demanding and our quality requirements apply at every level: in each of our subsidiaries, for each of our brands and every product we make.
> Our staff follows strict in-house standards that can exceed the regulatory requirements. We aim at making sure our products are of the highest possible quality at every stage of production. Over the course of the production cycle, every product is subject to about 100 quality controls.[4]

---

[1] https://www.loreal.com/en/group/about-loreal/standard-quality-and-safety/#:~:text=We%20ensure%20that%20our%20cosmetics,that%20fully%20comply%20with%20regulations. (Last viewed November 28, 2022).
[2] https://inside-our-products.loreal.com/our-answers-to-your-questions/labels-what-are-they-and-what-their-purpose (Last viewed November 28, 2022).
[3] https://inside-our-products.loreal.com/our-answers-to-your-questions/what-endocrine-disruptor (emphasis in original) (Last viewed November 28, 2022).
[4] https://inside-our-products.loreal.com/quality-heart-our-products (Last viewed November 28, 2022).

21. L'ORÉAL built its strong reputation and consumer trust for over 100 years by manufacturing and selling brands that have typically been of high quality, and so L'ORÉAL earns billions annually in revenue.

22. SOFT SHEEN assures customers on its website:

> **INGREDIENT SCIENCE**
> With the help of scientists, biologists, and physicists at our laboratories, Softsheen-Carson has secured its place in the market as experts, conducting advanced research in order to bring our consumers safe, reliable, high quality products that are guaranteed to provide astonishing results.
>
> Our unique and dedicated team of scientists and biologists has allowed us to develop advanced and extensive knowledge, making us the experts on hair and skin physiology for consumers of African descent on a worldwide scale. For this reason, all of the beauty products developed at the Softsheen-Carson laboratories are specifically dedicated and adapted to perfectly meet our consumers' beauty needs.
>
> We are committed to being the world leader in afro-specific hair care, and continue to focus all of our energy on delivering state-of-the-art hair care technologies that our consumers can trust.[5]

The Products

23. The products at issue in this lawsuit are Hair Straighteners and/or Hair Relaxers products used by consumers, including Plaintiff and similarly situated consumers, to chemically straighten and/or relax hair—while helping to "preserve the 5 signs of healthy hair: Moisture, Shine, Strength, Softness and Body."[6]

24. Black people make up approximately 13% of the U.S. population, but by one estimate, African American spending accounts for as much as 22% of the $42 billion-a-year

[5] https://www.softsheen-carson.com/about-us (Last viewed November 28, 2022).
[6] https://www.amazon.com/SoftSheen-Carson-Lovely-Healthy-Gloss-Moisture-Relaxer/dp/B005IUGWD6/ref=sr_1_2?crid=213VONOCN0489&keywords=dark+%26+lovely+hair+relaxer&qid=1669654906&sprefix=dark+%26+lovely+hair+relaxe%2Caps%2C110&sr=8-2 (Last viewed November 28, 2022).

personal care products market, suggesting that they buy and use more of such products – including those with potentially harmful ingredients– than Americans as a whole.[7]

25. In an analysis of ingredients in 1,177 beauty and personal care products marketed to Black women, about one in twelve (12) was ranked highly hazardous on the scoring system of EWG's Skin Deep® Cosmetics Database, a free online resource for finding less-hazardous alternatives to personal care products. The worst-scoring products marketed to Black women were hair relaxers, and hair colors and bleaching products. Each of these categories had an average product score indicating high potential hazard.

26. In the U.S. alone, Black consumers spend over $1 trillion each year, with a significant amount of that spending toward hair care products.

27. In 2020, the global Black Hair care market was estimated at $2.5 billion, with the hair relaxer market alone estimated at $718 million in 2021, with the expectation of growth to $854 million annually by 2028.

Defendants' Marketing Efforts

28. In 1971, Dark and Lovely manufactured the first lye relaxer. The formula consisted of sodium hydroxide, water, petroleum jelly, mineral oils, and emulsifiers.[8]

29. In the 1970s, lye relaxer users and manufacturers noticed that the lye formula stripped proteins from the hair strand, resulting in the hair thinning and breaking.[9] As a result,

[7] Thandisizwe Chimurenga, *How Toxic is Black Hair Care?*, New America Media, Feb. 2, 2012, americamedia.org/2012/02/skin-deep-in-more-ways-than-one.php; Personal Care *Products Manufacturing Industry Profile*, Dun & Bradstreet First Research, August 2016, www.firstresearch.com/Industry-Research/Personal-Care-Products-Manufacturing.html (This report uses "Black" to describe not only people who identify as African-American, but Black people in the U.S. who come from the Caribbean or other areas. "African-American" is used only when a cited source specifies that term).

[8] Cicely A. Richard, *This History of Hair Relaxers*, September 29, 2017, https://classroom.synonym.com/the-history-of-hair-relaxers-12078983.html.

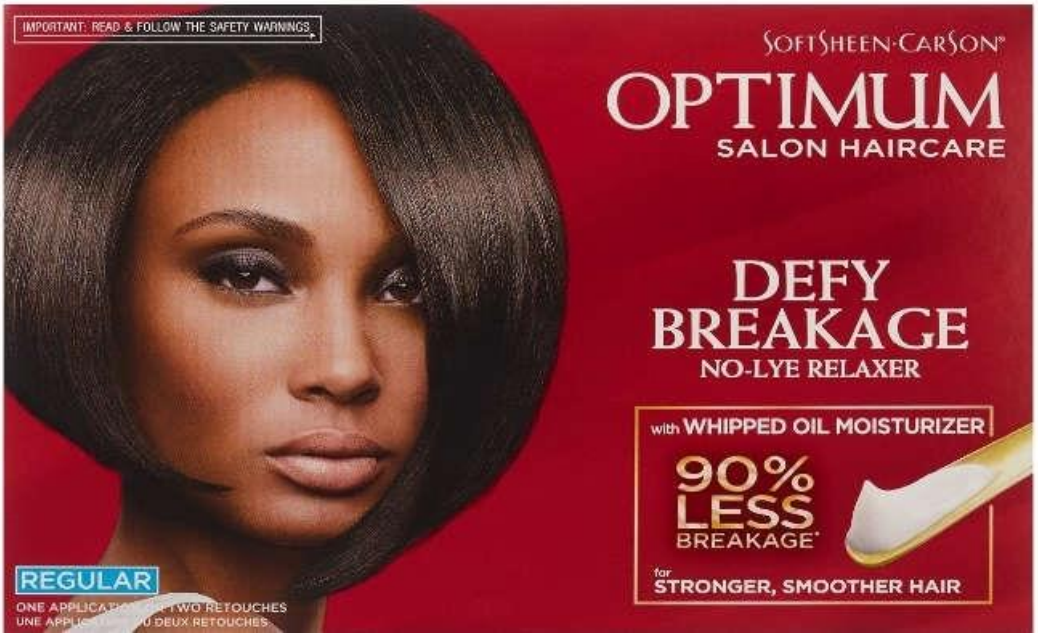
[9] *Id.*

Johnson and Johnson marketed the first "gentle" hair relaxer in 1981, which used milder chemicals such as potassium hydroxide and lithium hydroxide.[10]

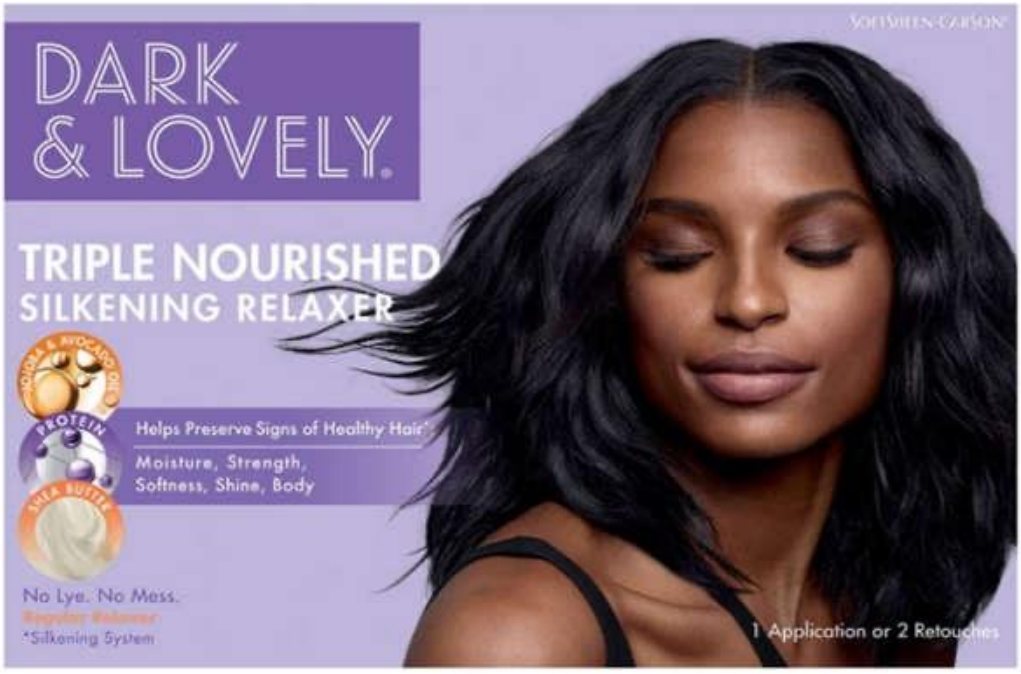
30. Over time, Soft & Beautiful and other chemical relaxer manufacturers developed herbal and botanical hair relaxer formulas.[11]

31. Today, Defendants market their hair relaxer products to African American customers across the United States, and the world, reinforcing the same historical Eurocentric standards of beauty. Defendants' marketing scheme relies heavily on branding and slogans that reinforce straight hair as the standard.[12]

32. The L'ORÉAL and SOFT SHEEN Defendants depict a Black woman with straight hair on each of their Dark and Lovely and Optimum brands of relaxer product.



[10] *Id.*
[11] *Id.*
[12] *Id.*



Chemical Relaxer Use

33. Hair relaxers are classified as creams or lotions which are specifically marketed to Black and Brown women to "tame" their ethnic hair by making it smoother, straighter, and easier to manage on a daily basis.

34. Hair relaxing, or lanthionization, can be performed by a professional cosmetologist in a salon or barbershop, or at home with at-home relaxer kits designed for individual use. These home kits are sold in grocery, drug, and beauty supply stores in urban and rural cities throughout the United States, including in South Carolina.

35. Relaxers are applied to the base of the hair shaft and left in place for a "cooking" interval, during which the relaxer alters the hair's texture by purposefully damaging the hair's natural protein structure. The effect of this protein damage straightens and smooths the hair. After a period of weeks (4 – 8 weeks on average), depending on the hair's natural growth rate, the treated portion of the hair grows away from the scalp as new growth sprouts from the roots, requiring additional relaxer treatment to smooth the roots. These additional treatments are colloquially

referred to in the community as "re-touches", resulting in women relaxing their new growth every four to eight weeks on average, usually for decades.

36. Hair relaxers can, and often do, cause burns and lesions in the scalp, facilitating entry of hair relaxer constituents into the body. The main ingredient of ''lye'' relaxers is sodium hydroxide; no-lye relaxers contain calcium hydroxide and guanidine carbonate; and ''thio'' relaxers contain thioglycolic acid salts. No-lye relaxers are advertised to cause fewer scalp lesions and burns than lye relaxers, but there is little evidence to support this claim.

37. In some studies, up to 90% of Black and Brown women have used hair relaxants and straighteners, which is more commonplace for these women than for any other race. Hair products such as relaxers contain hormonally active and carcinogenic compounds, such as phthalates, known to cause endocrine disruption, which are not required to be listed separately as ingredients and are often broadly lumped into the "fragrance" or "perfume" categories. Relaxer habits usually begin in formative childhood years, and adolescence is likely a period of enhanced susceptibility to debilitating conditions resulting from exposure to these chemicals.[13]

38. In the 1990s, the first relaxer product for young Black girls, Just for Me ™, hit the market with a catchy advertising jingle that captured consumer attention.[14] It soon became one of the most popular straightening treatments, touting a no-lye formula designed to be gentler for children's sensitive scalps.

39. Once relaxer use begins in childhood, it usually becomes a lifetime habit. The frequency of scalp burns with relaxer application can increase the risk of permanent and debilitating diseases associated with long-term exposure to endocrine-disrupting chemicals.

[13] Patrick Obukowcho, Hair Relaxers: Science, Design, and Application 27 (2018).
[14] Dana Oliver, *The '90s Just For Me Hair Relaxer Commercial Song Is Stuck In Our Heads*, HuffPost, Feb., 1, 2014. https://www.huffpost.com/entry/just-for-me-hair-relaxer-commercialsong_n_4689981.

Regulatory Framework

40. The law does not require cosmetic products and ingredients, other than color additives, to have FDA approval before they go to market. But there are laws and regulations that apply to cosmetics placed into the market. The two most important laws pertaining to cosmetics marketed in the United States are the Federal Food Drug and Cosmetic Act ("FD&C Act") and the Fair Packaging and Labeling Act ("FPLA").

41. The FD&C Act expressly prohibits the marketing of "adulterated" or "misbranded" cosmetics in interstate commerce.

42. Adulteration refers to a violation involving product composition whether it results from ingredients, contaminants, processing, packaging, shipping, or handling.

43. Under the FD&C Act a cosmetic is adulterated if: 1) it bears or contains any poisonous or deleterious substance causing injury to the product user and 2) if its container is composed, in whole or in part, of any poisonous or deleterious substance which may render the contents injurious to health.

44. Misbranding refers to violations involving improperly labeled or deceptively packaged products.

45. Under the FD&C Act, a cosmetic is misbranded if 1) labeling is false or misleading, 2) the label does not include all required information, 3) required information is not prominent and conspicuous, 4) the packaging and labeling is in violation of an applicable regulation issued pursuant to section 3 and 4 of the Poison Prevention Packaging Act of 1970.[15]

46. Under U.S. law, cosmetic manufacturers are not required to submit their safety data to the FDA. However, it is against the law to put an ingredient in a cosmetic that makes the

[15] Food and Drug Administration Cosmetic Act § 602 (1938).

cosmetic harmful when used as intended.[16] An example is methylene chloride because it causes cancer in animals and is likely to be harmful to human health, too.[17]

47. On May 19, 2022, the FDA issued a rule to amend its food additive regulations to no longer provide for most previously-authorized phthalates to be used as food additives because these uses have been abandoned by industry.[18] The FDA revoked authorizations for the food contact use of 23 phthalates and two other substances used as plasticizers, adhesives, defoaming agents, lubricants, resins, and slimicides.[19]

48. Companies and/or individuals who manufacture or market cosmetics have a legal responsibility and duty to ensure the safety of their own products. Neither the law nor FDA regulations require specific tests to demonstrate the safety of individual products or ingredients, and the law also does not require cosmetic companies to share their safety information with the FDA.

49. The FDA has consistently advised manufacturers to use whatever testing is necessary to ensure the safety of products and ingredients, which may be substantiated through (a) reliance on already available toxicological test data on individual ingredients and on product formulations that are similar in composition to the particular cosmetic and (b) performance of any additional toxicological and other tests that are appropriate in light of such existing data and information.[20]

---

[16] *Prohibited & Restricted Ingredients in Cosmetics*, U.S. Food and Drug Administration, https://www.fda.gov/cosmetics/cosmetics-laws-regulations/prohibited-restricted-ingredientscosmetics (Last viewed November 28, 2022).
[17] 21 Code of Federal Regulations § 700.19.
[18] § 87 FR 31080.
[19] *Phthalates in Food Packages and Food Contact Applications*, U.S. Food and Drug Administration, https://www.fda.gov/food/food-ingredients-packaging/phthalates-foodpackaging-and-food-contact-applications.
[20] *FDA Authority Over Cosmetics: How Cosmetics Are Not FDA-Approved, but Are FDA-Regulated*, U.S. Food and Drug Administration, Mar., 3, 2005, https://www.fda.gov/cosmetics/cosmetics-laws-regulations/fda-authority-over-cosmetics-howcosmetics-are-not-fda-approved-are-fda-regulated

50. Except for color additives and ingredients prohibited or restricted by regulation, a manufacturer may use any ingredient in the formulation of a cosmetic, provided that (1) the ingredient and the finished cosmetic are safe under labeled or customary conditions of use, (2) the product is properly labeled, and (3) the use of the ingredient does not otherwise cause the cosmetic to be adulterated or misbranded under the laws the FDA enforces.[21]

51. With respect to whether the product is properly labeled, Title 21 of the Code of Federal Regulations defines the establishment of warning statements related to cosmetic products. Section 740.1 states that "[t]he label of a cosmetic product ***shall*** bear a warning statement whenever necessary or appropriate to prevent a health hazard that ***may*** be associated with the product." (Emphasis added). This warning directive directly correlates with the broad authority of manufacturers over their own cosmetic products to ensure that products are safe under labeled or customary conditions of use, properly labeled, and not adulterated or misbranded under FDA laws.

52. In short, under the current regulatory framework in the United States, it is incumbent upon the manufacturers of cosmetic products, and them alone, to assess the safety and risks of their products, and to warn consumers anytime a health hazard may be associated with their products. Here, a wealth of peer-reviewed, scientific information is available regarding long term use of hair relaxers, straighteners and hair dyes as containing certain endocrine-disrupting chemicals, which should have alerted manufacturers of these products to the specific and dangerous harms associated with their products when used as intended, particularly in women of color.

[21] *Id.*

Components of Chemical Hair Straighteners and/or Relaxers

53. Recent studies investigating the potential link between various adverse health effects in women, including cancer, and the use of chemical hair straighteners and/or relaxers have implicated certain frequent chemical components of chemical hair straighteners as possible contributors to adverse health effects in women, including, but not limited to, increased cancer incidence and uterine fibroids. These constituents include phthalates, parabens, bisphenol A ("BPA"), cyclosiloxanes, diethanolamine (all of which are considered endocrine disrupting chemicals ("EDCs"), discussed in further detail below), metals, and formaldehyde.[22]

54. One study examining the chemical components of hair products used by Black women found that hair relaxers for children contained five chemicals that were either regulated by California's Proposition 65 or prohibited by EU cosmetics regulations (including the phthalate Di2-ethylhexylphthalate[23] ("DEHP") and BPA) due to their associations with reproductive toxicity and cancer, and were not generally listed on the product labels. Specifically, 84% of the chemicals detected in the study were not listed on the label. The researchers noted: "Mixtures of chemicals may act additively through a common biological pathway or affect multiple carcinogenic mechanisms, resulting in a greater effect than each chemical in isolation. Low-dose mixtures of

[22] Chang C-J, et al. *Use of Straighteners and Other Hair Products and Incidence Uterine Cancer*. JNCI J Natl Cancer Inst. 2022:00(0) (Available at: https://doi.org/10.1093/jnci/djac165); White A.J., et al. *Use of hair products in relation to ovarian cancer risk*. Carcinogenesis 2021;42(9):1189-1195 (Available at: https://doi.org/10.1093/carcin/bgab056); Coogan P.F., et al. *Hair product use and breast cancer incidence in the Black Women's Health Study*. Carcinogenesis 2021;42(7):924-930. DOI:10.1093/carcin/bgab04; Gaston S.A., et al. *Chemical/Straightening and Other Hair Product Usage during Childhood, Adolescence, and Adulthood among African-American Women: Potential Implications for Health*. J. Expo. Sci. Environ. Epidemiol. 2020;30(1):86-96. doi:10.1038/s41370-019-0186-6; Zota A.R., Shamasunder B. *The environmental injustice of beauty: framing chemical exposures from beauty products as a health disparities conc*ern. Am. J. Obstet. Oct. 2017;418-422.

[23] Also known as Bis(2-ethylhexyl) phthalate.

phthalates, parabens…and other common chemicals exhibit additive anti-androgenic activity and additive estrogenic activity."[24]

55. Regarding parabens and phthalates, a recent study stated that "Accumulating evidence from experimental and animal studies supports the carcinogenic potential of these chemicals."[25] Previous studies have shown higher levels of parabens (in endometrial tissues) and phthalates (in urine) in participants diagnosed with endometrial cancer than those who were cancer-free.[26] They have also been detected in human breast tumors.[27] Additionally, studies have shown higher urinary levels of certain phthalates and parabens in U.S. Black women compared to U.S. White women.[28] Black individuals in the U.S. have also been found to have higher concentrations of certain parabens than White individuals.[29]

56. Other studies have indicated a link between altered estrous cycle and uterine pathology in rats with chronic exposure to low-dose BPA, an adverse effect associated with

[24] Helm J.S., et al. *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018; 165:448-458.
[25] Coogan P.F., et al. Hair product use and breast cancer incidence in the Black Women's Health Study. Carcinogenesis 2021;42(7):924-930. DOI:10.1093/carcin/bgab041.
[26] Sarink D, et al., *BPA, parabens, and phthalates in relation to endometrial cancer risk: a case control study nested in the multiethnic cohort*. Environ Health Perspect. 2021;129(5): 57702.doi:10.1289/EHP8998.; Dogan S, et al. *Traces of intact paraben molecules in endometrial carcinoma*. Environ Sci Pollut Res Int. 2019;26(30):31158-31165. doi: 10.1007/s11356-019-06228-1.
[27] Darbre P.D., et al., *Concentrations of parabens in human breast tumours*. J. Appl. Toxicol. 2004; 24:5–13; Barr L., et al., *Measurement of paraben concentrations in human breast tissue at serial locations across the breast from axilla to sternum*. J. Appl. Toxicol. 2012; 32:219–232.
[28] Helm J.S., et al., *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018; 165:448-458; James-Todd T.M., et al., *Racial and ethnic variations in phthalate metabolite concentration changes across full-term pregnancies*. J. Expo. Sci. Environ. Epidemiol. 2017; 27:160–166; Varshavsky J.R., et al., *A novel method for calculating potency weighted cumulative phthalates exposure with implications for identifying racial/ethnic disparities among U.S. reproductive-aged women in NHANES 2001-2012*. Environ. Sci. Technol. 2016; 50:10616–10624; Nguyen V.K., et al., *A comprehensive analysis of racial disparities in chemical biomarker concentrations in United States women*, 1999-2014. Environ. Int. 2020; 137:105496.
[29] US Centers for Disease Control and Prevention. Fourth national report on human exposure to environmental chemicals: updated tables, Volume 1. US Department of Health and Human Services; 2019. Available at: https://stacks.cdc.gov/view/cdc/75822.

endometrial cancer development and progression.[30] Urine levels of BPA have also been positively associated with the prevalence of uterine fibroids.[31] Black individuals in the U.S. have also been found to have higher concentrations of BPA than White individuals.[32]

57. Further, studies have associated cyclosiloxanes with neoplastic responses, which can lead to tumor growth, in the uterus of rats.[33]

58. Finally, diethanolamine, metals, and formaldehyde have all been considered carcinogenic.[34]

1) Endocrine-Disrupting Chemicals

59. The endocrine system is indispensable for life and influences nearly every cell, organ, and processes within the body.[35] The endocrine system regulates all biological processes in the body from conception through adulthood, including the development of the brain and nervous

[30] Leung YK, et al., *Low-dose bisphenol a in a rat model of endometrial cancer: a CLARITY-BPA study*. Environ Health Perspect. 2020;128(12): 127005.doi:10.1289/EHP6875; Mallozzi M, et al., *Endocrine disrupting chemicals and endometrial cancer: an overview of recent laboratory evidence and epidemiological studies*. Int J Environ Res Public Health. 2017;14(3): 334.doi:10.3390/ijerph14030334.
[31] Wise, L.A. et al., *Epidemiology of Uterine Fibroids – From Menarche to Menopause*. Clin Obstet Gynecol. 2016;59(1):2-24. doi:10.1097/GRF.0000000000000164.
[32] US Centers for Disease Control and Prevention. Fourth national report on human exposure to environmental chemicals: updated tables, Volume 1. US Department of Health and Human Services; 2019. Available at: https://stacks.cdc.gov/view/cdc/75822.
[33] Dekant W, et al., *Biological relevance of effects following chronic administration of octamethylcyclotetrasiloxane (D4) in Fischer 344 rats*. Toxicol Lett. 2017; 279:42-53. doi:10.1016/j.toxlet.2017.01.010.; Jean PA, et al. Chronic toxicity and oncogenicity of decamethylcyclopentasiloxane in the Fischer 344 Rat. Regul Toxicol Pharmacol. 2016; 74:S57-S66. doi:10.1016/j.yrtph.2015.06.014.; Jean PA, Plotzke KP, *Chronic toxicity and oncogenicity of octamethylcyclotetrasiloxane (D4) in the Fischer 344 rat*. Toxicol Lett. 2017;279:75-97. doi:10.1016/j.toxlet.2017.06.003.
[34] Mallozzi M, et al., *Endocrine disrupting chemicals and endometrial cancer: an overview of recent laboratory evidence and epidemiological studies*. Int J Environ Res Public Health. 2017;14(3): 334.doi:10.3390/ijerph14030334; International Agency for Research on Cancer (IARC), *Chemical Agents and Related Occupations*. Vol 100F. Lyon, France: IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; 2012.; Aglan MA, Mansour GN. Hair straightening products and the risk of occupational formaldehyde exposure in hairstylists. Drug Chem Toxicol. 2020;43(5):488-495. doi:10.1080/01480545.2018.1508215; International Agency for Research on Cancer (IARC). Arsenic, Metals, Fibres and Dusts. Vol 100 C. Lyon, France: IARC Working Group on the Evaluation of Carcinogenic Risks to Humans; 2012; International Agency for Research on Cancer (IARC), Some Chemicals Present in Industrial and Consumer Products, Food and Drinking-Water. Vol 101. Lyon, France: IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; 2013.
[35] *Endocrine System: The Endocrine System Includes The Thyroid, Adrenals, and the Pituitary Gland*, Science Direct, https://www.sciencedirect.com/topics/psychology/endocrine-system

system, the growth and function of the reproductive system, as well as the metabolism and blood sugar levels.[36]

60. The endocrine system is a tightly regulated system made up of glands that produce and release precise amounts of hormones that bind to receptors located on specific target cells throughout the body.[37]

61. Hormones, such as estrogen, testosterone, progesterone, and androgen, are chemical signals that control or regulate critical biological processes.[38]

62. When a hormone binds to a target cell's receptor, the receptor carries out the hormone's instructions, the stimulus, and either switches on or switches off specific biological processes in cells, tissues, and organs.[39]

63. The precise functioning of the endocrine system is vital to maintain hormonal homeostasis, the body's natural hormonal production and degradation. A slight variation in hormone levels can lead to significant adverse-health effects, including reproductive impairment and infertility, cancer, cognitive deficits, immune disorders, and metabolic syndrome.[40]

64. EDCs are chemicals, or chemical mixtures, that interfere with the normal activity of the endocrine system.

65. EDCs can act directly on hormone receptors as mimics or antagonists, or on proteins that control hormone delivery.[41]

---

[36] *Endocrine Disruption*, United States Environmental Protection Agency, Mar. 7, 2022, https://www.epa.gov/endocrine-disruption/what-endocrine-system.
[37] *Id.*
[38] *Id.*
[39] *Id.*
[40] *Id.*; Michele La Merrill, et al., *Consensus on the Key Characteristics of Endocrine-Disrupting Chemicals as a Basis for Hazard Identification*, Nature Reviews Endocrinol, Nov. 12, 2019, https://www.nature.com/articles/s41574-019-0273-8.
[41] Evanthia Diamanti-Kandarakis, et al., *Endocrine-Disrupting Chemicals: An Endocrine Society Scientific Statement*, Endocrine Reviews, June 30, 2009, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2726844/.

66. EDCs disrupt the endocrine system and interfere with the body's hormonal homeostasis in various ways.

67. EDCs can cause the body to operate as if there were a proliferation of a hormone and thus over-respond to the stimulus or respond when it was not supposed to by mimicking a natural hormone.

68. EDCs can increase or decrease the levels of the body's hormones by affecting the production, degradation, and storage of hormones.

69. EDCs can block the hormone's stimulus through inducing epigenetic changes, modifications to DNA that regulate whether genes are turned on or off or altering the structure of target cells' receptors.[42]

70. EDCs are linked to numerous adverse human health outcomes including endometriosis, impaired sperm quality, abnormalities in reproductive organs, various cancers, altered nervous system and immune function, respiratory problems, metabolic issues, diabetes, obesity, cardiovascular problems, growth, neurological and learning disabilities.[43] Specifically, EDCs have the potential to cause formation of several hormone-dependent cancers, including breast and ovarian cancers.[44]

71. EDCs that mimic the effects of estrogen in the body may contribute to disease risk because exposure to estrogen, endogenously and exogenously, is associated with breast cancer,

[42] Luis Daniel Martínez-Razo, et al., *The impact of Di-(2-ethylhexyl) Phthalate and Mono(2- ethylhexyl) Phthalate in placental development, function, and pathophysiology*, Environment International, January 2021, https://www.sciencedirect.com/science/article/pii/S0160412020321838?via%3Dihub.
[43] *Endocrine Disrupting Chemicals (EDCs)*, Endocrine Society, Jan. 24, 2022, https://www.endocrine.org/patient-engagement/endocrine-library/edcs#:~:text=EDCs%20can%20disrupt%20many%20different,%2C%20certain%20canc. .
[44] Lee H. M., et al., *Diverse pathways of epithelial mesenchymal transition related with cancer progression and metastasis and potential effects of endocrine disrupting chemicals on epithelial mesenchymal transition proc*ess. Mol Cell Endocrinol 2017; 457:103-113, doi:10.1016/j.mce.2016.12.026.

and a woman's lifetime risk of developing the disease increases with greater duration and cumulative exposure.

72. Indeed, numerous studies spanning more than two decades have demonstrated the adverse impact EDCs, including Di-2-ethylhexylphthalate, may have on the male and female reproductive systems such as inducing endometriosis, abnormal reproductive tract formation, decreased sperm counts and viability, pregnancy loss, and abnormal puberty onset.[45]

73. Black women of reproductive age tend to have higher biomarkers of exposure to EDCs. One study stated: "EDCs are an understudied potential contributor to racial disparities in women's health outcomes despite higher chemical exposures among Black women resulting from historical and contemporary structural oppression."[46]

74. Natural and synthetic EDCs are present in hair products under the guise of "fragrance" and "perfumes," and thus enter the body when these products are exogenously applied to the hair and scalp. Studies exploring this issue have thus far classified EDCs as estrogens, phthalates, and parabens.

a. Phthalates

75. Phthalates are used in a variety of cosmetics and personal care products. Phthalates are chemical compounds developed in the last century that are used to make plastics more durable. These colorless, odorless, oily liquids also referred to as "plasticizers" based on their most common uses.

[45] Hee-Su Kim, et al., *Hershberger Assays for Di-2-ethylhexyl Phthalate and Its Substitute Candidates*, Dev Reproduction, Mar. 22, 2018, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5915764/.
[46] Wesselink A.K., et al., Urinary concentrations of phenols, parabens, and triclocarban in relation to uterine leiomyomata incidence and growth. Fertility and Sterility 2021;116(6):1590-1600. https://doi.org/10.1016/j.fertnstert.2021.07.003.

76. Phthalates also function as solvents and stabilizers in perfumes and other fragrance preparations. Cosmetics that may contain phthalates include nail polishes, hair sprays, aftershave lotions, cleansers, and shampoos.

77. At all relevant times herein, phthalates were used in Defendants' products.

78. Phthalates are chemicals used to improve the stability and retention of fragrances and to help topical products stick to and penetrate skin and hair.[47]

79. Phthalates are known EDCs which interfere with natural hormone production and degradation and are detrimental to human health.[48]

80. Phthalates are commonly used by cosmetics and hair care product manufacturers to make fragrances and colors last longer, and to make hair more flexible after product is applied, among other uses.

81. Phthalates can be found in most products that have contact with plastics during producing, packaging, or delivering. Despite the short half-lives in tissues, chronic exposure to phthalates will adversely influence the endocrine system and functioning of multiple organs, which has negative long-term impacts on the success of pregnancy, child growth and development, and reproductive systems in both young children and adolescents. Several countries have established restrictions and regulations on some types of phthalates.[49]

82. Defendants' products referenced herein contain phthalates, including Di-2-ethylhexylphthalate.

[47] Olivia Koski & Sheila Hu, *Fighting Phthalates*, National Resources Defense Council, April 20, 2022, https://www.nrdc.org/stories/fighting-phthalates.
[48] Yufei Wang & Haifeng Qian, *Phthalates and Their Impacts on Human Health*, Healthcare (Basel) 9, 603, May 9, 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8157593/.
[49] *Id.*

83. Under the authority of the Fair Packaging and Labeling Act ("FPLA"), the FDA requires an ingredient declaration on cosmetic products sold at the retail level to consumers.

84. However, the regulations do not require the listing of the individual fragrance or flavor, or their specific ingredients meaning phthalates evade listing when combined with a fragrance. As a result, a consumer, including Plaintiff, was not able to determine from the ingredient declaration on the label if phthalates were present in a fragrance used in the herein referenced hair products used by the Plaintiff and placed into the stream of commerce by Defendants.

85. Since 1999, the Centers for Disease Control ("CDC") have found phthalates in individuals studied for chemical exposure.[50]

(1) Di-2-ethylhexylphthalate

86. Di-2-ethylhexylphthalate[51] ("DEHP") is a highly toxic manufactured chemical,[52] classified by the International Agency for Research on Cancer ("IARC") as possibly carcinogenic to humans,[53] that is not found naturally in the environment.[54]

87. DEHP belongs to the family of chemicals called phthalates[55] and can be found in hair relaxers.[56]

---

[50] *Biomarker Groups*, National Report on Human Exposure to Enviornemntal Chemicals, Center for Disease Control, https://www.cdc.gov/exposurereport/pdf/Biomarker_Groups_Infographic508.pdf.
[51] Also known as Bis(2-ethylhexyl) phthalate.
[52] Sai Rowdhwal & Jiaxiang Chen, *Toxic Effects of Di-2-ethylhexyl Phthalate: An Overview*, Biomed Research International, Feb., 22, 2018 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5842715/#:~:text=DEHP%20is%20noncovalen.
[53] IARC Monographs – 101: Di(2-Ethylhexyl) Phthalate. Available at: https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono101-006.pdf.
[54] *Toxicological Profile for Di(2-Ethylhexyl) Phthalate (DEHP)*, U.S. Dept of Health and Human Services, January 2022, https://www.atsdr.cdc.gov/ToxProfiles/tp9.pdf (DEHP is listed as hazardous pollutants under the Clean Air Act.; DEHP is on the Proposition 65 list "because it can cause cancer and birth defects or other reproductive harm").
[55] *Di(2-ethylhexyl) phthalate (DEHP)*, Proposition 65, California. Gov, https://www.p65warnings.ca.gov/fact-sheets/di2-ethylhexylphthalate-dehp.
[56] Helm J.S., et al., *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018; 165:448-458.

88. DEHP was first used in 1949 in United States and has been the most abundantly used phthalate derivative in the Twentieth century.[57]

89. DEHP does not covalently bind to its parent material. Non-covalent bonds are weak and, as a result, DEHP readily leaches into the environment increasing human exposure.[58]

90. Humans are exposed to DEHP through ingestion, inhalation, and dermal exposure for their lifetimes, including intrauterine life.[59]

91. The Agency for Toxic Substances and Disease Registry ("ATSDR") estimates that the range of daily human exposure to DEHP is 3–30 µg/kg/day.[60]

92. The no-observed-adverse-effect level for DEHP to humans is 4.8 mg/kg bodyweight/day and the tolerated daily intake (TDI) is 48 µg/kg bodyweight.[61]

Endpoint	Cancer (NSRL)		Developmental and Reproductive Toxicity (MADL)	
Route of Exposure	Oral	Inhalation	Oral	Inhalation
DEHP	310 µg/day	N.C.	410 µg/day	N.C.

Source: OEHHA's safe harbor levels for TDCIPP, DBP, DEHP, benzene, and formaldehyde. N.C. = not calculated by OEHHA as of August 2020.[62]

[57] Pinar Erkekoglu & Belma Kocer-Gumusel, *Environmental Effects of Endocrine-Disrupting Chemicals: A Special Focus on Phthalates and Bisphenol A*, Environmental Health Risk, June 16, 2016, https://www.intechopen.com/chapters/50234.

[58] Katelyn H. Wong & Timur Durrani, *Exposures to Endocrine Disrupting Chemicals in Consumer Products – A Guide for Pediatricians, Current Problems in Pediatric and Adolescent Health Care*, Science Direct, May 2017, https://www.sciencedirect.com/science/article/pii/S1538544217300822?via%3Dihub.

[59] Schmidt, Juliane-Susanne, et al., *Effects of Di(2-ethylhexyl) Phthalate (DEHP) on Female Fertility and Adipogenesis in C3H/N Mice*, Environmental Health Perspective, May 15, 2012, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3440070/.

[60] Hannon, Patrick et. al., Daily Exposure to Di(2-ethylhexyl) Phthalate Alters Estous Cyclicity and Accelerates Primordial Follicle Recruitment Potentially Via Dysregulation of the Phosphatidylinositol 3-Kinase Signaling Pathway in Adult Mice, Biology of Reproduction Volume 90, Issue 6, June 2014, 136, 1–11 https://academic.oup.com/biolreprod/article/90/6/136,%201-11/2514356.

[61] Yufei Wang & Haifeng Qian, *Phthalates and Their Impacts on Human Health*, Healthcare (Basel) 9(5):603, May 18, 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8157593/.

[62] Aalekhya Reddam & David Volz, *Inhalation of two Prop 65-listed Chemicals Within Vehicles May Be Associated with Increased Cancer Risk*, Environment International Volume 149, April 2021, https://www.sciencedirect.com/science/article/pii/S016041202100026X.

93. When DEHP enters the human body, it breaks down into specific metabolites. The toxicity of DEHP is mainly attributed to its unique metabolites which include the primary metabolite, mono-(2-ethylhexyl)phthalate (MEHP), and secondary metabolites, mono-(2-ethyl-5-hydroxyhexyl)phthalate (MEHHP), and mono-(2-ethyl-5-oxohexyl)phthlate (MEOHP).[63]

94. DEHP and its metabolites are implicated in reproductive tract abnormalities, including cancer and infertility, as well as potential teratogenic effects.[64] Specifically, DEHP is considered carcinogenic in animals.[65]

95. Most of the available studies on the health effects of DEHP in laboratory animals used oral administration, with a few inhalation studies and only two dermal exposure studies identified.[66]

96. The results of the selected animal studies, along with limited human data, suggest potential associations between DEHP exposure and the following health outcomes:

> a) **Reproductive effects**. Epidemiological studies suggest a potential association between DEHP exposure and decreased serum testosterone and altered sperm parameters in males. Available studies on fertility effects in humans do not indicate an association between DEHP exposure and infertility. In animals, the available oral and inhalation studies provide evidence that the male reproductive system, particularly the testes, is susceptible to DEHP toxicity. Evidence from animal studies indicates decreased male and female fertility at high oral doses.

---

[63] Saab, Yolande, et. al., *Risk Assessment of Phthalates and Their Metabolites in Hospitalized Patients: A Focus on Di- and Mono-(2-ethylhexyl) Phthalates Exposure from Intravenous Plastic Bags*. Toxics, 10(7), 357, https://pubmed.ncbi.nlm.nih.gov/35878262/; Ishtaf Sheikh, et. at., *Endocrine disruption: In silico perspectives of interactions of di-(2-ethylhexyl)phthalate and its five major metabolites with progesterone receptor*. BMC Structural Biology Volume 16, Suppl 1, 16, Sept., 30, 2016, https://bmcstructbiol.biomedcentral.com/articles/10.1186/s12900-016- 0066-4 (Other secondary metabolites include mono(2-ethyl-5-carboxypentyl)phthalate (5-cxMEPP) and mono[2-(carboxymethyl)hexyl]phthalate (2-cx-MMHP)).

[64] Richardson, Kadeem et. al., *Di(2-ethylhexyl) Phthalate (DEHP) Alters Proliferation and Uterine Gland Numbers in the Uterine of Adult Exposed Mice*, Reproductive Toxicology, 77, 70- 79, https://pubmed.ncbi.nlm.nih.gov/29458081/; Yufei Wang & Haifeng Qian, *Phthalates and Their Impacts on Human Health*, Healthcare (Basel) 9, 603, May 9, 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8157593/.

[65] Helm J.S., et al., *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018; 165:448-458.

[66] *Chapter 2: Health Effects*, Toxicological profile for Di(2-ethylhexyl) phthalate (DEHP) (2001), https://www.atsdr.cdc.gov/ToxProfiles/tp9-c2.pdf.

> b) Dev**elopmental effects.** Epidemiological studies suggest a potential association between reduced AGD and testicular decent in male infants and prenatal DEHP exposure. In addition, human epidemiological studies provide mixed results for potential relationships between exposure to DEHP and preterm birth, early puberty, and delayed mental and psychomotor development in children. Studies in animals indicate that altered glucose homeostasis and the development of the reproductive system following early life exposure is a particularly sensitive target of DEHP toxicity.

97. The global consumption of DEHP was estimated at 3.07 million tons (Global demand for plasticizers continues to rise). The estimated global market of phthalates in 2020 is expected to reach 10 billion USD and would still be widely used in plasticizers.[67]

98. Human epidemiological studies have shown a significant association between phthalates exposures and adverse reproductive outcomes in both women and men.[68]

99. Evidence found that DEHP was significantly related to insulin resistance and higher systolic blood pressure and the reproduction system problems, including earlier menopause, low birth weight, pregnancy loss, and preterm birth.[69]

100. When it comes to the impacts on children, epidemiological studies about phthalates' toxicity focused on pregnancy outcomes, genital development, semen quality, precocious puberty, thyroid function, respiratory symptoms, and neurodevelopment.[70]

101. Since the turn of the century, restrictions on phthalates have been proposed in many Asian and western countries. In 2008, the US Congress announced the Consumer Protection Safety

[67] *Id*.
[68] *Id*.
[69] N.M. Grindler, et al., *Exposure to Phthalate, an Endocrine Disrupting Chemical, Alters the First Trimester Placental Methylome and Transcriptome in Women*, Scientific Reports Volume 8, April 17, 2018, https://doi.org/10.1038/s41598-018-24505-w.
[70] *Id*.

Act (CPSA) that permanently banned the products, especially children's toys and childcare articles, containing DEHP, DBP, and BBP at levels >0.1% by weight.[71]

b. Parabens

102. Parabens are used as preservative and antibacterial agents in personal care products, and have estrogenic and anti-androgenic activity.[72]

103. Hair products used by Black women, including chemical straighteners/relaxers, are more likely to contain parabens, which affect estrogenic pathways.[73]

104. The prevalence of these compounds in such products is consistent with corresponding higher levels found in biomonitoring samples of Black women as compared with White women.[74] In addition, one study indicated that Black children in the U.S. have five times the urinary paraben levels of White children.[75]

105. Parabens have been associated with uterine fibroid tumors, premature puberty, and endocrine disruption.[76]

106. In one study, parabens were found in breast tumor tissue at levels similar to those shown to induce uterine growth in rodents.[77]

---

[71] Consumer Product Safety Improvement Act of 2008, H.R. 4040, 110th Cong. (2008), https://www.congress.gov/110/plaws/publ314/PLAW-110publ314.pdf.
[72] Harley KG, et al., *Reducing phthalate, paraben, and phenol exposure from personal care products in adolescent girls: findings from the HERMOSA Intervention Study*. Environ Health Perspect 2016;124:1600–1607; http://dx.doi.org/10.1289/ehp.1510514.
[73] Zota A.R., et al., *The environmental injustice of beauty: framing chemical exposures from beauty products as a health disparities concern*. Am. J. Obest. & Gyn. Oct. 2017.
[74] Helm J.S., et al., *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018;165:448-458.
[75] Calafat A.M., et al., *Urinary concentrations of four parabens in the U.S. population: NHANES 2005–2006*. Environ Health Perspect. 2010;118:679–685. [PubMed: 20056562].
[76] Helm J.S., et al., *Measurement of endocrine disrupting and asthma-associated chemicals in hair products used by Black women*. Environ. Research 2018;165:448-458.
[77] Myers S.L., et al., *Estrogenic and anti-estrogenic activity of off-the-shelf hair and skin care products*. J. Expo. Sci. Environ. Epidemiol. 2015;25(3):271-277. doi:10.1038/jes.2014.32.

2) Formaldehyde

107. Formaldehyde is a naturally occurring, organic, reactive, volatile, colorless gas detectable in air, drinking water, and foods.[78]

108. Formaldehyde has been classified as a known human carcinogen by both the U.S. Department of Health and Human Services' National Toxicology Program ("NTP") and IARC.[79]

109. Specifically, in 2005, IARC published its conclusions regarding formaldehyde: "After a thorough discussion of the epidemiologic, experimental, and other relevant data, the working group concluded that formaldehyde is carcinogenic to humans, based on sufficient evidence in humans and in experimental animals."[80]

110. Formaldehyde is a common ingredient in chemical hair straighteners, even in those labeled as "formaldehyde-free," released into the air when the product is heated during application.[81]

Injuries Associated with Exposure to Chemical Hair Straighteners and/or Endocrine Disrupting Chemicals

a. **Uterine Cancer**

111. Uterine cancer is associated with phthalate metabolites found in hair care products.

112. Uterine cancer[82] accounts for approximately 3% of all new cancer cases.[83]

[78] Pierce J.S., et al., *Characterization of Formaldehyde Exposure Resulting from the Use of Four Professional Hair Straightening Products*. J. Occ. and Environ. Hygiene 2011;8:686-699.
[79] *Id*.
[80] Cogliano V.J., et al., *Meeting Report: Summary of IARC Monographs on Formaldehyde, 2- Butoxyethanol, and 1-tert-Butoxy-2Propanol*. Environ. Health Perspect. 2005;113:1205–1208. doi:10.1289/ehp.7542 available via http://dx.doi.org/.
[81] Pierce J.S., et al., *Characterization of Formaldehyde Exposure Resulting from the Use of Four Professional Hair Straightening Products*. J. Occ. and Environ. Hygiene 2011;8:686-699.
[82] Uterine cancer includes endometrial carcinoma as well as uterine sarcoma, among other less common types.
[83] *Cancer Stat Facts: Uterine Cancer*, National Cancer Institute, https://seer.cancer.gov/statfacts/html/corp.html.

113. There are an estimated almost 66,000 new cases of uterine cancer in 2022 in the USA alone, out of which more than 90% is of endometrial origin. It is commonly diagnosed in the seventh decade, with the median age being 63 years.[84]

114. In addition, Black women with uterine cancer carry a poorer prognosis as compared to White women.[85]

115. Though death rates from other cancers in women have declined in recent years, death rates for uterine cancer have increased by more than 100% in the last 20 years.[86]

116. Indeed, new cases of uterine cancer have increased by 0.6% per year from 2010 to 2019, and death rates have risen an average of 1.6% per year over 2011 to 2020.[87]

117. One study conducted by the National Cancer Institute (NCI) found that uterine cancer incidence rates increased by about 1% per year from 2003 to 2015, with a more rapid increase among women of other racial/ethnic groups than among White women. Uterine cancer incidence rates for Black women in particular have been higher than that of White women since 2007, and were consistently higher from 2011 through 2015.[88]

118. Recent findings from the Sister Study – a large, diverse, ongoing prospective cohort study conducted by the National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health (NIH), to investigate risk factors for breast cancer and other health conditions – show that women who used chemical hair straighteners and/or relaxers had a higher

[84] *Id.*; *Key Statistics for Endometrial Cancer*, American Cancer Society, https://www.cancer.org/cancer/endometrial-cancer/about/key-statistics.html.
[85] Joel Sorosky, *Endometrial Cancer*, Obstetrics & Gynecology Volume 120, 383-97, Aug. 2012, https://pubmed.ncbi.nlm.nih.gov/22825101/.
[86] *Id.*
[87] Jack J. Lee, *Rising Endometrial Cancer Rate Spur New Approaches to Prevention*, National Cancer Institute: Division of Cancer Prevention, June 28, 2022, https://prevention.cancer.gov/news-and-events/blog/rising-endometrial-cancer.
[88] Clarke M.A., et al., *Hysterectomy-Corrected Uterine Corpus Cancer Incidence Trends and Differences in Relative Survival Reveal Racial Disparities and Rising Rates of Nonendometrioid Cancers*. J. Clin. Oncol. 2019;37:1895-1908.

risk of uterine cancer[89] than those who did not. Importantly, the researchers found no such association with other hair products used by those women, including hair dye, bleach, highlights, or perms. [90]

119. The NIEHS study followed 33,947 US women aged 35-74 for almost 11 years. During follow-up, there were 378 cases of uterine cancer, 262 of which were confirmed through medical records and used for the analysis. The researchers concluded that women who reported frequent use of hair straightening products (i.e., more than four times in the previous year) were more than twice as likely to develop uterine cancer compared to those who did not use the products.[91]

120. The study found that an estimated 1.64% of women who never used chemical hair straighteners or relaxers would go on to develop uterine cancer by the age of 70; but for frequent users, that risk more than doubles, increasing to 4.05%.[92]

121. Approximately 60% of the women in the NIEHS study who used straighteners/relaxers identified as Black women. While the study did not show a difference in uterine cancer incidence based on race, the researchers stated that Black women may experience greater adverse health effects based on higher reported prevalence and frequency of use, younger age of initiating use, and harsher chemicals (i.e., higher concentrations of EDCs and other chemicals being regulated or banned).[93]

---

[89] Uterine cancer cases were defined as women who reported a diagnosis of endometrial cancer, uterine sarcoma, or other types of cancer in the uterus after enrollment.
[90] Che-Jung Chang, et al., *Use of Straighteners and Other Hair Products and Incident Uterine Cancer*, Journal of the National Cancer Institute, Oct. 17, 2022, https://pubmed.ncbi.nlm.nih.gov/36245087/.
[91] *Id*. Specifically, in ever vs. never users the HR = 1.80 [1.12-2.88]; for frequent vs. never users the HR = 2.55 [1.46-4.45]. The researchers estimated that 1.64% of women who did not use the products would develop uterine cancer by age 70, compared to 2.82% of ever users and 4.05% of frequent users.
[92] *Id*.
[93] *Id*.

122. These recent findings are consistent with earlier studies showing an increase in hormone-related cancers in women with use of straighteners, including breast and ovarian cancer. The NIH Sister Study researchers previously found that permanent hair dye and straighteners might increase breast and ovarian cancer risk.[94]

b. **Breast Cancer**

123. Breast cancer is associated with phthalate metabolites found in hair care products.

124. In Black women, breast cancer is diagnosed earlier and tends to be more aggressive, resulting in Black women having the highest rates of death due to this disease than any other ethnic/racial group.

125. The role of environmental exposure to estrogen and EDCs has been studied for good reason. A growing body of evidence links: (1) environmental estrogen and EDC exposures to breast cancer risk, (2) the presence of such chemicals in personal care products, including hair products, and (3) the use of certain hair products with potential breast cancer risk in African Americans.[95]

126. Numerous, biologically plausible mechanisms have been published in the peer-reviewed medical and scientific literature that support a causal link between hair straighteners and reproductive and/or endocrine-related tumors.

a. Hormonal imbalances and over-activation of the estrogen, progesterone, and epidermal receptors are associated with development and progression of breast cancer.[96]

---

[94] Eberle C.E., et al., *Hair dye and chemical straightener use and breast cancer risk in a large US population of black and white women*. Int. J. Cancer. 2020;147:383-391; White A.J., et al., *Use of hair products in relation to ovarian cancer risk*. Carcinogenesis 2021;42(9):1189-1195.

[95] Laura Stiel, et al., *A Review of Hair Product Use on Breast Cancer Risk in African American Women*, Cancer Medicine, 5(3):597-604, March 2016, https://pubmed.ncbi.nlm.nih.gov/26773423/.

[96] *Hormone Action in the Mammary Gland*, Cold Spring Harbor Perspectives in Biology, 2(12), December 2010, https://pubmed.ncbi.nlm.nih.gov/20739412/; Suzanne Fenton & Linda Birnbaum, *Timing of Environmental*

b. Studies have shown that increased breast cancer mortality, poor prognosis, and the recurrence of breast cancer are associated with the higher urinary concentrations of DEHP and its metabolite, MEHP.[97] Studies have also shown that exposure to DEHP increases invasive proprieties of breast cells.[98]

c. Hormone receptor-negative breast cancer means that cancer cells do not grow in response to the hormones estrogen or progesterone.[99] Receptors are proteins on certain tumor cells that hormones stick to, allowing cancer cells to grow and multiply.

d. Progesterone is essential for the mammary gland development and has a proliferative effect on epithelial cells.[100] Disruption of the progesterone pathway is known to be a risk factor for breast cancer.[101] Two progesterone receptors are expressed at similar levels in the mammary gland, PR-A and PR-B.[102]

e. The progesterone receptor gene is an estrogen-regulated gene.[103]

Exposures as a Critical Element in Breast Cancer Risk, The Journal of Clinical Endocrinology & Metabolism, Volume 100, Issue 9, 3245–3250, Sept., 1, 2015, https://academic.oup.com/jcem/article/100/9/3245/2836022.

[97] Tsung-Hua Hsieh, et al., *DEHP Mediates Drug Resistance by Directly Targeting AhR in Human Breast Cancer*, Biomedicine & Pharmacotherapy, Volume 145, 112400, Nov. 18, 2021, https://pubmed.ncbi.nlm.nih.gov/34801851/.

[98] Belinda Crobeddu, et al., *Di(2-ethylhexyl) Phthalate (DEHP) Increases Proliferation of Epithelial Breast Cancer Cells Through Progesterone Receptor Dysregulation*, Environmental Research, Volume 172, 165-173, June 2019, https://www.sciencedirect.com/science/article/abs/pii/S0013935119301653?via%3Dihub#bib82.

[99] *Id*.

[100] *Id*.

[101] *Id*.

[102] P.A. Mote, et al., *Loss of Co-ordinate Expression of Progesterone Receptors A and B is an Early Event in Breast Carcinogenesis*, Breast Cancer Research and Treatment, 72, 163-172, 2002, https://link.springer.com/article/10.1023/A:1014820500738#citeas.

[103] Mariana Brandao, et al., Molecular Biology of Breast Cancer, Essential Concepts in Molexular Pathology, Progesterone Receptor, 2020, https://www.sciencedirect.com/topics/medicine-anddentistry/progesterone-receptor.

f. T-47D cells are cancer cells isolated from breast cancer patients and contain the receptors involved in hormone-dependent breast cancer, estrogen, and progesterone receptors.

g. DEHP and its metabolite, MEHP, increase cell proliferation of T-47D cancerous cells.[104] DEHP and MEHP induce progesterone receptor stimuli, resulting in increased progesterone receptor levels and T-47D cell proliferation.[105]

h. Importantly, when progesterone receptors are purposefully inhibited by administration of a pharmacologic antagonist competitor of the progesterone receptor, it decreases the proliferation of T-47D induced by DEHP and MEHP.[106] Thus, exposure to DEHP and its metabolite increases proliferation of breast cancer cells by activating the progesterone receptor.[107]

i. Estrogen receptor α drives more than 70% of breast cancers.[108]

j. Estrogen receptor-negative breast cancers are a group of tumors with poor prognosis and fewer cancer prevention and treatment strategies compared to estrogen-positive tumors.[109]

[104] Bélinda Crobeddu, et al., *Di(2-ethylhexyl) Phthalate (DEHP) Increases Proliferation of Epithelial Breast Cancer Cells Through Progesterone Receptor Dysregulation*, Environmental Research, Volume 172, 165-173, June 2019, https://www.sciencedirect.com/science/article/abs/pii/S0013935119301653?via%3Dihub#bib82.
[105] *Id*.
[106] *Id*.
[107] *Id*.
[108] David G. Hicks M.D. & Susan C. Lester MD, PhD, *Hormone Receptors (ER/PR)*, Diagnostic Pathology: Breast, Progesterone Receptor, 2016, https://www.sciencedirect.com/topics/medicine-and-dentistry/progesterone-receptor.
[109] Thomas C Putti, et al., *Estrogen Receptor-Negative Breast Carcinomas: A Review of Morphology and Immunophenotypical Analysis*, Modern Pathology, 18, 26–35, Aug. 27, 2004, https://www.nature.com/articles/3800255.

k. DEHP metabolites were associated with increased risk of breast cancer as well as uterine leiomyoma due to the EDC's influence on estrogen receptors.[110]

l. Aromatase and estrogen receptor α are two key proteins for the proliferation of endocrine-responsive and endocrine–resistant breast cancers.[111]

m. Aromatase is an enzyme involved in the conversion of androgen, such as testosterone, to estrogen, such as 17β-estradiol. It is also a very effective therapeutic target for the treatment of endocrine-responsive breast cancer.[112]

n. The aryl hydrocarbon receptor (AhR) can form an estrogen receptor α complex, which activates the receptor's response even in the absence of estrogen.[113]

o. AhR plays an important role in estrogen receptor-negative breast cancer, including the regulation of tumor growth, metastasis,[114] and drug resistance.[115]

p. AhR functions as a receptor for EDC phthalates and causes drug inactivation. Overexpression of AhR affects cell proliferation and motility and is associated with a poor prognosis in human cancer.[116]

---

[110] Zhiqin Fu, et al., *Association Between Urinary Phthalate Metabolites and Risk of Breast Cancer and Uterine Leiomyoma*, Reproductive Toxicology, 74: 134-142, Sept. 23, 2017, https://pubmed.ncbi.nlm.nih.gov/28951174/.
[111] Hei Jason Chan, et al., *Structural and Functional Characterization of Aromatase, Estrogen Receptor, and Their Genes in Endocrine-Responsive and -Resistant Breast Cancer Cells*, The Journal of Steroid Biochemistry and Molecular Biology, Volume 161, 73-83, July 2016, https://www.sciencedirect.com/science/article/abs/pii/S0960076015300303.
[112] *Id*.
[113] *Aromatic Hydrocarbon Receptor*, Comprehensive Toxicology, 2010, https://www.sciencedirect.com/topics/medicine-and-dentistry/aromatic-hydrocarbon-receptor.
[114] The spread of cancer cells from the place where they first formed to another part of the body.
[115] Tsung-Hua Hsieh, et al., *DEHP mediates drug resistance by directly targeting AhR in human breast cancer*, Biomedicine & Pharmacotherapy, Volume 145, Jan. 2022, https://www.sciencedirect.com/science/article/pii/S0753332221011860?via%3Dihub.
[116] *Id*.

q. CYP450 is a group of enzymes involved in the estrogen pathway and are considered important candidate genes for the susceptibility to breast carcinoma.[117]

r. CYP1A1 is a CYP450 enzyme examined extensively for its capacity to activate compounds with carcinogenic properties.[118] Continuous exposure to inhalation chemicals and environmental carcinogens is assumed to increase the level of CYP1A1 through the AhR.[119] CYP1A1 is a known significant risk factor for breast carcinoma.[120]

s. CYP1B1 is another CYP450 enzyme involved in the metabolism of potential carcinogens.[121] CYP1B1 expression has been shown to be higher in tumors compared to normal tissues, especially in hormone-related cancers including breast, ovary, and prostate tumors.[122]

t. A recent study provided a clinical outcome demonstrating that DEHP directly binds to AhR and induces downstream CYP1A1 and CYP1B1 expression through the genomic AhR pathway. This study thus revealed new evidence by which DEHP and AhR are co-involved in breast cancer drug resistance.[123]

---

[117] Balraj Mittal, et al., *Chapter 4 – Cytochrome P450 in Chapter Susceptibility and Treatment*, Advances in Clinical Chemistry, Volume 71, 77-139, 2015, https://www.sciencedirect.com/science/article/abs/pii/S0065242315000517.
[118] Vasilis Androutsopoulos, et al., *Cytochrome P450 CYP1A1: Wider Roles in Cancer Progression and Preven*tion, BMC Cancer, Volume 9, June 16, 2009. https://bmccancer.biomedcentral.com/articles/10.1186/1471-2407-9-187.
[119] *Id*.
[120] Tsung-Hua Hsieh, et al., *DEHP mediates drug resistance by directly targeting AhR in human breast cancer*, Biomedicine & Pharmacotherapy, Volume 145, Jan. 2022, https://www.sciencedirect.com/science/article/pii/S0753332221011860?via%3Dihub.
[121] Yeo-Jung Kwon, et al., *Enhances Cell Proliferation and Metastasis through Induction of EMT and Activation of Wnt/β-Catenin Signaling via Sp1 Upregulation*, PLoS One, 11(3), March 16, 2016, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0151598.
[122] *Id*.
[123] Tsung-Hua Hsieh, et al., *DEHP mediates drug resistance by directly targeting AhR in human breast cancer*, Biomedicine & Pharmacotherapy, Volume 145, Jan. 2022, https://www.sciencedirect.com/science/article/pii/S0753332221011860?via%3Dihub.

u. This same study also evaluated DEHP metabolites in the urine of approximately 500 breast cancer patients and demonstrated that the metabolite concentration was significantly higher in the recurrent breast cancer group compared with non-recurrent patients.[124]

v. Urinary concentrations of mono-ethyl phthalate have been positively associated with breast cancer risk, as well as the number of personal care products used, and the use of hair products, among other personal care products, has been significantly associated with urinary phthalate concentration

127. Studies published in peer reviewed scientific journals have shown a positive correlation between increased breast cancer risk and adolescent use of hair products that modify hair texture, specifically hair straighteners, perms, and hair dye in Black women in the U.S.[125] The frequency of use is associated with a higher risk of premenopausal breast cancer.

128. The use of straighteners in the year prior to baseline was associated with an 18% higher risk of breast cancer.[126] In the Women's Circle of Health Study (WCHS), a case-control study of women in New York, use of relaxers before age 12 and between the ages of 13–19 years was positively associated with Endocrine Receptive breast cancer among African-American women; which is consistent with our finding of a suggestive higher risk for Endocrine Receptive tumors.[127]

[124] *Id*.
[125] Alexander J. White et al., *Adolescent use of hair dyes, straighteners and perms in relation to breast cancer risk*, Int'l J. of Cancer, Vol. 148(9):2255-2263 (2021), https://pubmed.ncbi.nlm.nih.gov/33252833/.
[126] *Id*.
[127] *Id*.

129. In the Ghana Breast Health study, use of relaxers was associated with a higher risk overall and risk was elevated regardless of age of first use, including in the youngest age category (<21 years).[128]

130. A recent study, published in the *Carcinogenesis Journa*l by Oxford University, concluded that Black women who used lye-based relaxers at least seven times a year for over 15 years or more had around a 30% increased risk of developing breast cancer, compared with those who used it less frequently.[129]

131. The US-based researchers examined data from Boston University's Black Women's Health Study, which assessed the medical diagnoses of 50,000 African American women over a 25-year time period plus variable factors that could impact upon their wellbeing. Between 1997 and 2017, some 95% reported using lye-based relaxers and 2,311 developed breast cancers.[130]

132. Another recent publication from the researchers of the Sister Study found that use of chemical hair straighteners in the year prior to enrollment was associated with an 18% increased risk of breast cancer, with an even higher risk associated with frequent use. Further, "women who used straighteners at least every 5-8 weeks had a 31% higher breast cancer risk."[131]

c. **Ovarian Cancer**

133. Ovarian cancer is rare, making up approximately 1% of new cancer cases, with almost 20,000 new cases estimated in 2022. Approximately 1.1% of all women will be diagnosed

[128] *Id*.
[129] Patricia F. Coogan et al., *Hair product use and breast cancer incidence in the Black Women's Health Study*, Carcinogenesis, Vol. 42, Issue 7 (July 2021) 924– 930, https://doi.org/10.1093/carcin/bgab041.
[130] Wise, L. A., Palmer, J. R., Reich, D., Cozier, Y. C., & Rosenberg, L. (2012). *Hair Relaxer Use and Risk of Uterine Leiomyomata in African-American Women*. American Journal of Epidemiology, 175(5), 432–440. https://doi.org/10.1093/aje/kwr351.
[131] Eberle C.E., et al., *Hair dye and chemical straightener use and breast cancer risk in a large US population of black and white women*. Int. J. Cancer. 2020;147:383-391; White A.J., et al., *Use of hair products in relation to ovarian cancer risk*. Carcinogenesis 2021;42(9):1189-1195.

with ovarian cancer. Of the 10.6 per 100,000 women per year who will be diagnosed with ovarian cancer, the death rate is 6.3 per 100,000 women – a 49.7% survival rate.[132]

134. While overall rates of ovarian cancer have declined in the U.S., which has been attributed to increased exposure to oral contraceptives, Black women have the poorest survival rate at every stage and across subtypes.[133]

135. Another recent publication from the researchers of the Sister Study found the risk of ovarian cancer approximately doubled with frequent use (defined as greater than four times per year) of chemical hair straighteners/relaxers in the previous year as opposed to never use (HR = 2.19).[134]

136. While the study was not powered to detect differences based on race/ethnicity, among Black women the hazard ratios were elevated for every use of straighteners (HR = 1.28) or perms (HR = 1.80). Further, the researchers noted that "given the much higher prevalence of use of these products, the impact of these results is more relevant for African American/Black women."[135]

d. **Uterine Fibroids**

137. Uterine fibroids,[136] or uterine leiomyomata, are associated with phthalate metabolites and BPA found in hair care products.[137]

138. Although typically benign, uterine fibroids can cause significant health issues such as excessive menstrual bleeding and pelvic pain, which can significantly affect a woman's quality

[132] *Cancer Stat Facts*: Ovarian Cancer, National Cancer Institute, https://seer.cancer.gov/statfacts/html/ovary.html.
[133] Park H.K., et al., *Recent Trends in Ovarian Cancer Incidence and Relative Survival in the United States by Race/Ethnicity and Histologic Subtypes*. Cancer Epidemiol. Biomarkers Prev. 2017;26(10):1511-1518. doi: 10.1158/1055-9965.EPI-17-0290.
[134] White A.J., et al., *Use of hair products in relation to ovarian cancer risk*. Carcinogenesis 2021;42(9):1189-1195.
[135] *Id*.
[136] Uterine fibroids are smooth muscle tumors that typically develop during reproductive years.
[137] Wise, L.A. et al., *Epidemiology of Uterine Fibroids – From Menarche to Menopause*. Clin Obstet Gynecol. 2016;59(1):2-24. doi:10.1097/GRF.0000000000000164.

of life, and may require invasive surgery.[138] It has been estimated that uterine fibroids account for approximately 30% of all hysterectomies performed on women aged 18-44 years,[139] and are the leading indication for hysterectomy in the U.S.[140]

139. Black women have a higher prevalence of uterine fibroids and tumors than any other ethnicity/racial group.[141] Specifically, Black women have a two to three times greater incidence of uterine fibroids than White women at all ages, and lower mean ages at first diagnosis and hysterectomy. The authors of one study noted that environmental factors, which would include exposure to EDCs, cannot be ruled out as a possible explanation for this difference.[142] Another study indicated that EDC exposure may contribute to fibroid risk and progression.[143]

140. It has been estimated that more than 80% of Black women will develop uterine fibroids, with 20% requiring a hysterectomy.[144]

141. A 2012 study in the American Journal of Epidemiology associated fibroid risk with the use of hair relaxers. In the Black Women's Health Study, the authors assessed hair relaxer use in relation to uterine leiomyomata incidence. In 1997, participants reported on hair relaxer use (i.e., age at first use, frequency, duration, number of burns, and type of formulation). From 1997 to 2009, 23,580 premenopausal women were followed for incident uterine leiomyomata. The authors noted that the incidence of uterine leiomyomata was two to three times higher in US Black

[138] Wise, L.A. et al., *Epidemiology of Uterine Fibroids – From Menarche to Menopause*. Clin Obset Gynecol. 2016;59(1):2-24.
[139] *Id*.
[140] *Study of Environment, Lifestyle & Fibroids (SELF)*, National Institute of Environmental Health Sciences, https://www.niehs.nih.gov/research/atniehs/labs/epi/studies/self/index.cfm.
[141] Wise L. A., et al., *Hair Relaxer Use and Risk of Uterine Leiomyomata in African-American Women*. American Journal of Epidemiology. 2012;175(5):432–440. https://doi.org/10.1093/aje/kwr351.
[142] *Study of Environment, Lifestyle & Fibroids (SELF)*, National Institute of Environmental Health Sciences, https://www.niehs.nih.gov/research/atniehs/labs/epi/studies/self/index.cfm.
[143] Bariani M. V., et al., *The role of endocrine-disrupting chemicals in uterine fibroid pathogenesis*. Curr Opin Endocrinol Diabetes Obes 2020;27:380-387, doi:10.1097/MED.0000000000000578.
[144] Study of Environment, Lifestyle & Fibroids, https://www.detroitself.org/About.

women than in US white women, with the lifetime risk estimated to be 80% in US Black women. The study showed positive trends for frequency of use, duration of use, and number of burns: "Among long-term users (>10 years), the incidence rate ratios for frequency of use categories 3-4, 5-6, and >7 versus 1-2 times/year were 1.04 […], 1.12 […], and 1.15 […], respectively."[145]

142. Shirley McDonald of the Hair and Scalp Clinic says, "We now know that many hair products contain chemicals that are considered carcinogenic and/or hormone disrupters, leading to increased risk of medical issues such as fibroids (non-cancerous tumors that grow in the uterus, potentially damaging fertility and leading to a host of other complications). Trichologists see lots of conditions that are likely to be triggered by hair products, particularly central centrifugal cicatricial alopecia, a type of permanent hair loss to the crown area of the scalp."[146]

143. One study examined the association between exposure to phthalates and measures of uterine fibroid burden—fibroid diameter and uterine volume. Associations between uterine volume and certain phthalate metabolites were most pronounced: the sum of DEHP increased volume risk by 33% and the sum of androgenic phthalates increased risk by 27%. The researchers concluded that "Exposure to some phthalate biomarkers was positively associated with uterine volume, which further supports the hypothesis that phthalates exposures may be associated with fibroid outcomes."[147]

[145] Wise L. A., et al., *Hair Relaxer Use and Risk of Uterine Leiomyomata in African-American Women*. American Journal of Epidemiology. 2012;175(5):432–440. https://doi.org/10.1093/aje/kwr351.
[146] *There's Hidden Danger in Black Hair Relaxers*, Houston Fibroids Blog (Oct. 19, 2022), https://houstonfibroids.com/posts/fibroid-symptoms/warning-your-hair-products-could-behurting-you/.
[147] Zota A.R., et al., *Phthalates exposure and uterine fibroid burden among women undergoing surgical treatment for fibroids: a preliminary study*. Fertil Steril 2019;111(1):112-121, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6321778/.

144. In the FORGE study, researchers found that exposure to some phthalates was associated with microRNA expression, an epigenetic modification, in uterine fibroids. They also found that some of those associations varied by race/ethnicity.[148]

e. **Endometriosis**

145. Endometriosis[149] is associated with phthalate metabolites found in hair care products.

146. In Black women in the USA, endometriosis is one of the common indications for major gynecological surgery and hysterectomy, and is associated with long hospital stays and high hospital charges.[150]

147. The function of the uterine lining, the endometrium, is based on cell–to-cell interactions under the instruction of steroid hormones.[151] Endometriosis, a common cause of female infertility, occurs almost exclusively in menstruating women of reproductive age and often results from disruptions of this well-balanced cellular equilibrium.[152]

148. It is estimated that 20-50% of women being treated for infertility have endometriosis.[153]

149. Endometriosis is a painful, estrogen-dependent disease resulting from the growth of endometrial glands and stroma outside the uterus that causes a chronic inflammatory reaction.[154]

---

[148] Zota A.R., et al., P*hthalate Exposures and MicroRNA Expression in Uterine Fibroids: The FORGE Study*. Epigenetics Insights 2020;13:1-11.
[149] Endometriosis is a disease in which endometrial cells grow outside the uterus.
[150] M. C. Kyama, *The prevalence of endometriosis among African-American and African-indigenous women*. Gynecologic and obstetric investigation, Vol. 57(1) (2004), https://pubmed.ncbi.nlm.nih.gov/14974452/.
[151] L. Cobellis et al., *High plasma concentrations of di-(2-ethylhexyl)-phthalate in women with endometriosis*, Human Reproduction, Vol. 18, Issue 7 (2003), 1512–1515, https://doi.org/10.1093/humrep/deg254.
[152] D. L. Olive and L. B. Schwartz, *Endometriosis*, The New England J. of Med., Vol. 328(24):1759-69 (1993), https://pubmed.ncbi.nlm.nih.gov/8110213/; K. G. Osteen and E. Sierra-Rivera, *Does disruption of immune and endocrine systems by environmental toxins contribute to development of endometriosis?*, Seminars in Reproductive Endocrinology, Vol. 15(3):301-8 (1997) https://pubmed.ncbi.nlm.nih.gov/9383839/.
[153] *Endometriosis*, World Health Organization (March 31, 2021), https://www.who.int/newsroom/fact-sheets/detail/endometriosis.
[154] *Id.*

150. During the follicular phase of the menstrual cycle, estrogen, working through estrogen receptor α[155], induces growth of the endometrium.[156]

151. The developing fetus and the female reproductive tract are particularly susceptible to EDCs.[157] EDCs are known to interfere with hormonal homeostasis, leading to alteration of estrogen signaling.[158] Specifically, DEHP is known to cause enhanced-estrogenic activity.[159]

152. DEHP is a known estrogen receptor agonist that promotes cell proliferation.[160] An agonist is a chemical that activates a receptor to produce a biological response.

153. An experimental study supports the hypothesis that DEHP leads to changes in the endometrium, including increasing the viability, activity, proliferation, and migration of endometrial stromal cells, a precondition of endometriosis.[161]

154. Studies have shown that endometriotic women have significantly higher plasma DEHP concentrations than those without the disease.[162] A study that included a sample size of

---

[155] Ilaria Paterni et al., *Estrogen receptors alpha (ERα) and beta (ERβ): subtype-selective ligands and clinical potential*, Steroids, Vol. 90:13-29 (2014), https://pubmed.ncbi.nlm.nih.gov/24971815/.
[156] Kun Yu et al., *Estrogen Receptor Function: Impact on the Human Endometrium*, Frontiers in endocrinology, Vol. 13 (2022), https://pubmed.ncbi.nlm.nih.gov/35295981/.
[157] Saniya Rattan et al., *Di(2-Ethylhexyl) Phthalate Exposure During Prenatal Development Causes Adverse Transgenerational Effects on Female Fertility in Mice*, Toxicol Sci., Vol. 163(2) (2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5974785/.
[158] Xueping Chen et al., *Toxicity and Estrogenic Endocrine Disrupting Activity of Phthalates and Their Mixtures*, Int'l J. Envtl. Res. and Pub. Health, 1(3):3156-3168 (2014) https://doi.org/10.3390/ijerph110303156; Pablo A, Pérez et al., *The phthalate DEHP modulates the estrogen receptors α and β increasing lactotroph cell population in female pituitary glands*, Chemosphere, Vol. 258:127304 (2020), https://pubmed.ncbi.nlm.nih.gov/32559490/.
[159] Chon-Kit Chou et al., *Reduced camptothecin sensitivity of estrogen receptor-positive human breast cancer cells following exposure to di(2-ethylhexyl)phthalate (DEHP) is associated with DNA methylation chan*ges, Envtl. Toxicology, Vol. 3, Issue 4 (2019), https://doi.org/10.1002/tox.22694.
[160] Juhye Kim, et al., *Chronic Low-Dose Nonylphenol or Di-(2-ethylhexyl) Phthalate has a Different Estrogen-like Response in Mouse Uterus*, Development & reproduction, Vol. 22(4):379-391 (2018), https://pubmed.ncbi.nlm.nih.gov/30680337/. ("In the present study, we could see that in vitro treatment with DEHP caused various biological changes of endometrial cells such as increased MMP-2 and -9 activities, increased cell invasion, increased Erk phosphorylation, and increased Pak4 expression. Taken these findings together with our previous in vitro study, we can propose that refluxed endometrial cells could not only survive in the pelvic cavity following retrograde menstruation, but also invade through mesothelial layer, develop vascular supplies, proliferate at ectopic location, and eventually establish endometriotic lesions through various biological alterations caused by exposure to high level of phthalate.")
[161] *Id*.
[162] L. Cobellis et. al, *High plasma concentrations of di-(2-ethylhexyl)-phthalate in women with endometriosis*, Human Reproduction, Vol. 18, Issue 7 (July 1, 2013), 1512–1515, https://doi.org/10.1093/humrep/deg254/

approximately 500 women living in various states observed that DEHP's metabolite, MEHP, was the only phthalate consistently associated with endometriosis.[163] Another study found high serum levels of DEHP in women diagnosed with endometriosis, with an increasing trend in advanced stages, which led the authors to suggest a role of phthalates in endometriosis etiology.[164]

155. One study also found a correlation between BPA serum levels and endometriosis.[165]

PLAINTIFF'S FACTUAL ALLEGATIONS

156. Plaintiff Roberta Holmes has used chemical Hair-Straighteners and/or Hair Relaxers for decades.

157. Plaintiff Roberta Holmes purchased for personal use Defendants' "Dark & Lovely" Product near her residence in Loris, South Carolina.

158. Plaintiff Roberta Holmes was diagnosed with endometriosis cancer in January 2019. After Plaintiff Roberta Holmes' cancer diagnosis, she continued to use Dark & Lovely until April 2022.

159. Nowhere on the Products' packaging did Defendants disclose that the Products contain chemicals that increase the risk of cancer at the time of purchase.

160. If Plaintiff Roberta Holmes had been aware of the existence of chemicals that increase the risk of cancer in the Products, she would not have purchased the Products or would have paid significantly less.

Concluded that 92.6% of women with endometriosis tested had detectable levels of DEHP and /or its metabolite, MEHP.

[163] Buck Louis G. M. et al., *Bisphenol A and phthalates and endometriosis: the Endometriosis: Natural History, Diagnosis and Outcomes Study*, Fertility and sterility, Vol. 100(1):162-9.e1-2 (2013), https://pubmed.ncbi.nlm.nih.gov/23579005/.

[164] Nazi S., et al., *Women diagnosed with endometriosis show high serum levels of diethyl hexyl phthalate*. J. Human Reproductive Sciences 2018;11(2):131-136.

[165] Cobellis, L. et al., 2009. *Measurement of bisphenol A and bisphenol B levels in human blood sera from healthy and endometriotic women*. Biomedical chromatography. 2009;23(11):1186– 90.

161. As a result of Defendants' actions, Plaintiff Roberta Holmes has incurred damages, including economic damages.

162. If the Defendants' Products were reformulated to be safe and without chemicals that increase the risk of cancer, Plaintiff Roberta Holmes would choose to purchase the Products in the future.

CLASS ACTION ALLEGATIONS

163. Plaintiff brings this case as a class action pursuant to Federal Rule of Civil Procedure 23 on her own behalf and as the Class representatives on behalf of the following:

> **Nationwide Class**: All persons within the United States who purchased the Products within the applicable statute of limitations.
>
> **South Carolina Subclass**: All persons within South Carolina who purchased the Products within the applicable statute of limitations.

164. The Nationwide Class and South Carolina Subclass shall collectively be referred to herein as the "Classes."

165. Plaintiff reserves the right to amend the Class definitions if further investigation and discovery indicate that the Class definitions should be narrowed, expanded, or otherwise modified.

166. Excluded from the Classes are governmental entities, Defendants, its officers, directors, affiliates, legal representatives, and employees.

167. This action has been brought and may be maintained as a class action under Federal Rule of Civil Procedure 23.

168. **Numerosity** – Federal Rule of Civil Procedure 23(a)(1). Plaintiffs are informed and believes that the proposed Classes contain thousands of purchasers of Defendants' toxic Hair-Straightener and/or Hair Relaxers. As a result, joinder of all Class members in a single action is

impracticable. Class members may be informed of the pendency of this class action through a variety of means, including, but not limited to, direct mail, email, published notice, and website posting.

169. **Existence and Predominance of Common Questions of Law and Fact** – Federal Rule of Civil Procedure 23 (a)(2) and 23(b)(3). There are questions of fact and law common to the Classes that predominate over any question affecting only individual members. Those questions, each of which may also be certified under Rule 23(c)(4), include without limitation:

a. whether Defendants' advertising, merchandising, and promotional materials directed to Plaintiff were deceptive regarding the increased risk of cancer posed by chemicals in Defendants' Products;

b. whether Defendants made representations about the safety of the Products;

c. whether Defendants omitted material information related to the safety of the Products;

d. whether Defendants' Products were merchantable;

e. whether Defendants violated the consumer protection statutes invoked herein;

f. whether Defendants' conduct alleged herein was fraudulent; and

g. whether Defendants were unjustly enriched by sales of the Products.

170. The questions set forth above predominate over any questions affecting only individual persons concerning sales of Defendants' Products throughout the United States and a class action is superior with respect to considerations of consistency, economy, efficiency, fairness, and equity to other available methods for the fair and efficient adjudication of Plaintiff's claims.

171. **Typicality** – Federal Rule of Civil Procedure 23(a)(3). Plaintiff's claims are typical of those of the Class in that the Class members uniformly purchased Defendants' Products and were subjected to Defendants' uniform merchandising materials and representations at the time of purchase.

172. **Superiority** – Federal Rule of Civil Procedure 23(b)(3). A class action is the appropriate method for the fair and efficient adjudication of this controversy. The presentation of separate actions by individual Class members could create a risk of inconsistent adjudications, establish incompatible standards of conduct for Defendants, and/or substantially impair or impede the ability of Class members to protect their interests. In addition, it would be impracticable and undesirable for each member of the Class who suffered an economic loss to bring a separate action. The maintenance of separate actions would place a substantial and unnecessary burden on the courts and could result in inconsistent adjudications, while a single class action can determine, with judicial economy, the rights of all Class members.

173. **Adequacy** – Federal Rule of Civil Procedure 23(a)(4). Plaintiff is an adequate representative of the Classes because she is a member of the Classes and her interests do not conflict with the interests of the Classes that she seeks to represent. The interests of the members of the Classes will be fairly and adequately protected by Plaintiff and her undersigned counsel. Counsel is experienced in the litigation of civil matters, including the prosecution of consumer protection class action cases.

174. **Insufficiency of Separate Actions** – Federal Rule of Civil Procedure 23(b)(1). Absent a representative class action, members of the Classes would continue to suffer the harm described herein, for which they would have no remedy. Even if separate actions could be brought by individual consumers, the resulting multiplicity of lawsuits would cause undue burden and

expense for both the Court and the litigants, as well as create a risk of inconsistent rulings and adjudications that might be dispositive of the interests of similarly situated purchasers, substantially impeding their ability to protect their interests, while establishing incompatible standards of conduct for Defendants. The proposed Classes thus satisfy the requirements of Fed. R. Civ. P. 23(b)(1).

175. **Declaratory and Injunctive Relief** – Federal Rule of Civil Procedure 23(b)(2). Defendants have acted or refused to act on grounds generally applicable to Plaintiff and the other members of the Classes, thereby making appropriate final injunctive relief and declaratory relief, as described below, with respect to the members of the Classes as a whole. In particular, Plaintiff seeks to certify a Class to enjoin Defendants from selling or otherwise distributing the Products as labeled until such time that Defendants can demonstrate to the Court's satisfaction that the Products confer the advertised benefits and are otherwise safe to use as intended.

176. Additionally, the Classes may be certified under Rule 23(b)(1) and/or (b)(2) because:

a. The prosecution of separate actions by individual members of the Classes would create a risk of inconsistent or varying adjudications with respect to individual members of the Classes that would establish incompatible standards of conduct for the Defendants;

b. The prosecution of separate actions by individual members of the Classes would create a risk of adjudications with respect to them which would, as a practical matter, be dispositive of the interests of other members of the Classes not parties to the adjudications, or substantially impair or impede their ability to protect their interests; and/or

c. Defendants have acted or refused to act on grounds generally applicable to the Classes, thereby making appropriate final and injunctive relief with respect to the members of the Classes as a whole.

CAUSES OF ACTION

COUNT I

Breach of Express Warranty
(On behalf of the National Class and, alternatively, the Subclass)

177. Plaintiff repeats and re-alleges the allegations above as if set forth herein.

178. Plaintiff, and each member of the National Class, formed a contract with Defendants at the time Plaintiff and each member of the National Class purchased the Products.

179. The terms of the contract include the promises and affirmations of fact made by Defendant on the Products' packaging and through marketing and advertising, as described above.

180. This labeling, marketing, and advertising constitute express warranties and became part of the basis of the bargain and are part of the standardized contract between Plaintiff and the members of the National Class and Defendants.

181. As set forth above, Defendants purport through its advertising, labeling, marketing, and packaging, to create an express warranty that the Product is safe for its intended use.

182. Plaintiff and the members of the National Class performed all conditions precedent to Defendants' liability under this contract when they purchased the Products

183. Defendants breached express warranties about the Products and their qualities because Defendants' Products contained chemicals that increase the risk of cancer at the time of purchase and the Products do not conform to Defendants' affirmations and promises described above.

184. Plaintiff and each of the members of the National Class would not have purchased the Products had they known the true nature of the harmful chemicals in the Product.

185. As a result of Defendants' breach of warranty, Plaintiff and each Class Member suffered and continue to suffer financial damage and injury, and are entitled to all damages, in addition to costs, interest and fees, including attorneys' fees, as allowed by law.

COUNT II

Breach of Implied Warranty
(On behalf of the National Class and, alternatively, the Subclass)

186. Plaintiff repeats and re-alleges the allegations above as if set forth herein.

187. Defendants are merchants and was at all relevant times involved in the manufacturing, distributing, warranting, and/or selling of the Products.

188. The Products are "goods" under the relevant laws, and Defendants knew or had reason to know of the specific use for which the Products, as goods, were purchased.

189. Defendants entered into agreements with retailers to sell its Products to be used by Plaintiff and Class Members for personal use.

190. The implied warranty of merchantability included with the sale of each Product means that Defendants guaranteed that the Products would be fit for the ordinary purposes for which Hair Straighteners and/or Hair Relaxers products are used and sold, and were not otherwise injurious to consumers. The implied warranty of merchantability is part of the basis for the benefit of the bargain between Defendants, and Plaintiff and the Class Members.

191. Defendants breached the implied warranty of merchantability because the Products are not fit for their ordinary purpose of providing reasonably reliable and safe use for Hair Straighteners and/or Hair Relaxers because the Products contain chemicals that increase the risk

of cancer. Thus, the Products are not fit for their particular purpose of safely Hair Straighteners and/or Hair Relaxers.

192. Defendants' warranty expressly applies to the purchaser of the Products, creating privity between Defendants and Plaintiff and Class Members.

193. Yet privity is not required because Plaintiff and Class Members are the intended beneficiaries of Defendants' warranties and its sale through retailers. Defendants' retailers were not intended to be the ultimate consumers of the Products and have no rights under the warranty agreements. Defendants' warranties were designed for and intended to benefit the consumer only, including Plaintiff and Class Members.

194. Defendants have been provided sufficient notice of its breaches of implied warranties associated with the Products. Defendants were put on constructive notice of its breach through its review of consumer complaints and other reports, including the National Institute of Health testing report discussed throughout this complaint, and upon information and belief through its own product testing.

195. Had Plaintiff, Class Members, and the consuming public known that the Products were contaminated with chemicals that increase the risk of cancer, they would not have purchased the Products or would have paid less for them.

196. As a direct and proximate result of the foregoing, Plaintiff and Class Members suffered and continue to suffer financial damage and injury, and are entitled to all damages, in addition to costs, interest and fees, including attorneys' fees, as allowed by law.

COUNT III

Negligent Misrepresentation
(On behalf of the National Class and, alternatively, the Subclass)

197. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

198. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

199. Defendants specifically made false representations about the Product's safety to the Plaintiff and members of the proposed Class through their website, social media accounts, and other advertisements.

200. Thus, Defendants deceptively marketed its Products to Plaintiff and members of the proposed class that its Products would safely chemically straighten and/or relax hair without containing chemicals that increase the risk of cancer.

201. Defendants have a pecuniary interest in making these advertisements as it was made in the course of Defendants' course of business.

202. Defendants breached its duty by falsely advertising and marketing that its Products would safely chemically straighten and/or relax hair without containing chemicals that increase the risk of cancer.

203. Plaintiff and members of the Class reasonably and justifiably relied on Defendants' advertisements and promotions as Defendants were in a superior position to know the truth of the advertisements and promotions made.

204. Plaintiff and members of the Class were reasonable to rely on the Defendants' advertisements and promotions as true because Plaintiff and member of the Class did not know the truth of the statements nor could ascertain the truth.

205. Defendants' conduct is the direct and proximate cause of the pecuniary loss suffered by Plaintiff and Class members.

206. Plaintiff and the National Class, and, alternatively, the South Carolina Subclass seek actual damages, injunctive and declaratory relief, attorney's fees, costs, and any other just and proper relief available.

COUNT IV

Fraudulent Concealment
(On behalf of the National Class and, alternatively, the Subclass)

207. Plaintiff repeats and re-alleges the allegations above as if set forth herein.

208. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

209. Defendants had a duty to disclose material facts to Plaintiff and the Classes given their relationship as contracting parties and intended users of the Products. Defendants also had a duty to disclose material facts to Plaintiff and the Classes—that it was in fact manufacturing, distributing, and selling harmful products unfit for human use, because Defendants had superior knowledge such that the transactions without the disclosure were rendered inherently unfair.

210. Defendants possessed knowledge of these material facts. Defendants have been aware of the positive association between DEHP used in their products and an increased risk of cancer demonstrated by epidemiology studies since at least 2015 that exposure to the phthalates in their products enhance invasive and proliferative activities of endometrial cells.

211. Recent studies have established a statistically significant correlation between Defendants' Products and cancer.

212. During this time, Plaintiff, and members of the Classes, were using the Products without knowing they contained chemicals that increase the risk of cancer.

213. Defendants failed to discharge its duty to disclose these materials facts.

214. In so failing to disclose these material facts to Plaintiff and the Classes, Defendants intended to hide from Plaintiff and the Classes that they were purchasing and consuming the Products with harmful defects that was unfit for human use, and thus acted with scienter and/or an intent to defraud.

215.

216. Plaintiff and the Classes reasonably relied on Defendants' failure to disclose insofar as they would not have purchased the defective Products manufactured and sold by Defendants had they known they contained chemicals that increased the risk of cancer.

217. As a direct and proximate cause of Defendants' fraudulent concealment, Plaintiff, and the Classes, suffered damages in the amount of monies paid for the defective Products.

218. As a result of Defendants' willful and malicious conduct, punitive damages are warranted.

COUNT V

Unjust Enrichment
(On behalf of the National Class and, alternatively, the Subclass)

219. Plaintiff incorporates the allegations set forth in the preceding paragraphs as though set forth fully herein.

220. Plaintiff, and the other members of the Nationwide Class, conferred benefits on Defendants in the form of monies paid to purchase Defendants' defective and worthless Products.

221. Defendants voluntarily accepted and retained this benefit.

222. Because this benefit was obtained unlawfully, namely by selling and accepting compensation for products unfit for human use, it would be unjust and inequitable for Defendants to retain the benefit without paying the value thereof.

223. Defendants received benefits in the form of revenues from purchases of the Products to the detriment of Plaintiff, and the other members of the Nationwide Class, because Plaintiff, and members of the Nationwide Class, purchased mislabeled products that were not what they bargained for and were not safe and effective, as claimed.

224. Defendants have been unjustly enriched in retaining the revenues derived from the purchases of the Products by Plaintiff and the other members of the Nationwide Class. Retention of those monies under these circumstances is unjust and inequitable because Defendants' labeling of the Products was misleading to consumers, which caused injuries to Plaintiff, and members of the Nationwide Class, because they would have not purchased the Products had they known the facts.

225. Because Defendants' retention of the non-gratuitous benefits conferred on them by Plaintiff and members of the Nationwide Class is unjust and inequitable, Defendants must pay restitution to Plaintiff and members of the Nationwide Class for its unjust enrichment, as ordered by the Court.

COUNT VI

Breach of Implied Warranty of Merchantability
(On behalf of the National Class and, alternatively, the Subclass)

226. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

227. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

228. Defendants are merchants engaging in the sale of goods to Plaintiff and the Classes.

229. There was a sale of goods from Defendants to Plaintiff and the Classes

230. As the developer, manufacturer, marketer, distributor, and/or seller of the defective Products ("Products" as Pled in Paragraph 1) Defendants impliedly warranted to Plaintiff and the Classes that its Products were fit for their intended purpose in that they would be safe for Plaintiff and the Classes to use for Hair Straighteners and/or Hair Relaxers.

231. Contrary to these representations and warranties, the Products were not fit for their ordinary use, and did not conform to Defendants' affirmations of fact and promises as use of the Products was accompanied by the risk of adverse health effects that do not conform to the packaging.

232. Defendants breached the implied warranty in the contract for the sale of the Products by knowingly selling to Plaintiff and the Classes a product that Defendants knew, or should have known, would expose Plaintiff and the Classes to significant health risks, thus meaning Defendants knew that the Products were not fit for their intended purpose.

233. Defendants were on notice of this breach, as they were made aware of the adverse health effects accompanying use of their Products.

234. Plaintiff and the Classes did not receive the goods as bargained for because the goods they received were not merchantable as they did not conform to the ordinary standards for goods of the same average grade, quality, and value.

235. Plaintiff and members of the Classes are the intended beneficiaries of Defendants' implied warranties.

236. The Products were not altered by Plaintiff or the members of the Classes.

237. Plaintiff and members of the Classes used the Products in the ordinary manner in which such devices were intended to be used.

238. The Products were defective when they left the exclusive control of Defendants.

239. The Products were defectively designed and/or manufactured and unfit for their intended purpose, and Plaintiff and members of the Classes did not receive the goods that they bargained for.

240. Plaintiff and members of the Classes purchased the Products that contained the Defect, which was undiscoverable by them at the time of purchase and at any time during the class period.

241. As a result of the defect in the Products, Plaintiff and members of the Classes have suffered damages including, but not limited to, the cost of the defective device, loss of use of the device and other related damage.

242. Defendants breached the implied warranty of merchantability to the Plaintiff and Class members.

243. Thus, Defendants' attempt to limit or disclaim the implied warranties in a manner that would exclude coverage of the Defect is unenforceable and void.

244. Plaintiff and Class members have been damaged by Defendants' breach of the implied warranties.

245. Plaintiff and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law.

COUNT VII

Negligence
(On behalf of the National Class and, alternatively, the Subclass)

246. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

247. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

248. Defendants, directly or indirectly, caused the Products to be sold, distributed, marketed, promoted, and/or used by Plaintiff and the Proposed Classes.

249. At all times relevant to this litigation, Defendants owed a duty to Plaintiffs and the proposed Classes to exercise reasonable care in its designing, marketing, supplying, packaging, promoting, and selling Defendants' products, including the duty to prevent the Products from containing chemicals that increase the risk of cancer in the Defendants' products.

250. Defendants also owe a duty to Plaintiffs and the proposed Classes to manufacture, distribute, and sell Hair Straighteners and/or Hair Relaxers products that are safe and fit for human consumption, meaning without chemicals that increase the risk of cancer.

251. Plaintiffs and all Class Members are reasonable consumers who expect companies, like Defendants, to manufacture, distribute, and sell Hair Straighteners and/or Hair Relaxers products that are safe and fit for human usage.

252. At all relevant times to this litigation, Defendants knew, or in the exercise of reasonable care, should have known that Plaintiffs and Class Members purchased Defendants products for Hair Straighteners and/or Hair Relaxers.

253. Defendants breached its duty to design, manufacture, distribute, and sell Hair Straighteners and/or Hair Relaxers products that are safe and fit for human usage when it

manufactured, distributed, and sold its products containing chemicals that increase the risk of cancer.

254. Despite the ability and means of the Defendants to design, manufacture, distribute, and sell Hair Straighteners and/or Hair Relaxers products without chemicals that increase the risk of cancer, Defendants failed to do so. Indeed, Defendants wrongfully produced, manufactured, distributed, and sold Hair Straighteners and/or Hair Relaxers products that were unsafe and unfit for human usage.

255. Defendants' negligence included:

a. Selling and/or distributing Hair Straighteners and/or Hair Relaxers products containing chemicals that increase the risk of cancer;

b. Selling and/or distributing Hair Straighteners and/or Hair Relaxers products while negligently and/or intentionally concealing increased risk of cancer from the chemicals in Defendants' products;

c. Failing to promptly notify Plaintiffs and Class Members of the increased risk of cancer from the chemicals in Defendants' products; and

d. Systematically failing to promptly notify the consuming public of the increased risk of cancer from the chemicals in Defendants' Hair Straighteners and/or Hair Relaxers products.

256. As a direct and proximate result of Defendants' breach of duty by manufacturing, distributing, and selling Hair Straighteners and/or Hair Relaxers products that contain chemicals that increase the risk of cancer, Plaintiffs and all Class Members have suffered, and will continue to suffer, economic loss. Plaintiffs and all Class Members had purchased Defendants' products to

use for Hair Straightening and/or Hair Relaxing and cannot do so as a direct result of Defendants' negligence.

257. Plaintiffs' and Class Members' injuries were foreseeable to Defendants because Defendants have been aware of the positive association between DEHP used in their products and an increased risk of cancer demonstrated by epidemiology studies since at least 2015 that exposure to the phthalates in their products enhance invasive and proliferative activities of endometrial cells.

258. Plaintiffs and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law.

COUNT VIII

Strict Liability – Failure to Warn
(On behalf of the National Class and, alternatively, the Subclass)

259. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

260. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

261. Defendants had a duty to warn Plaintiff and the Class members regarding the Defect and the true risks associated with the Products

262. Defendants were in a superior position to know of the Defect.

263. Defendants failed to provide adequate warnings regarding the risks of the Products.

264. Defendants had information related to the true risks but failed to warn Plaintiff and members of the Classes to strengthen their warnings.

265. Despite their knowledge of the Defect and obligation to unilaterally strengthen the warnings, Defendants instead chose to actively conceal this knowledge from the public.

266. Plaintiff and members of the Classes would not have purchased, chosen, and/or paid for all or part of the Products if they knew of the Defect and the risks of purchasing the Products.

267. This Defect proximately caused Plaintiff's and Class members' damages.

268. The Plaintiff and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law.

COUNT IX

Strict Liability – Design Defect
(On behalf of the National Class and, alternatively, the Subclass)

269. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

270. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

271. Defendants had a duty to warn Plaintiff and the Class members regarding the Defect and the true risks associated with the Products

272. The design of the Products was defective and unreasonably dangerous.

273. Exposure to chemicals that increase the risk of cancer while Plaintiff and members of the Classes used the Products, caused exposure to materials with toxic and carcinogenic effects.

274. The design of the Products rendered them not reasonably fit, suitable, or safe for their intended purpose.

275. The dangers of the chemicals that increase the risk of cancer in the Products outweighed the benefits and rendered the Products unreasonably dangerous.

276. There are other Products and other similar Hair Straighteners and/or Hair Relaxers products that do not use chemicals that increase the risk of cancer—meaning that there were other means of production available to Defendants.

277. The Products were unreasonably unsafe, and the Products should have had stronger and clearer warnings or should not have been sold in the market.

278. The Products did not perform as an ordinary consumer would expect.

279. Plaintiff and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law.

COUNT X

Negligent Failure to Warn
(On behalf of the National Class and, alternatively, the Subclass)

280. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

281. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

282. Defendants owed Plaintiff and Class members a duty of care and to warn of any risks associated with the Products.

283. Defendants' breach of duty caused Plaintiff and Class members economic damages and injuries in the form of exposure to chemicals that increase the risk of cancer.

284. Plaintiff and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law

COUNT XI

Negligent Design Defect
(On behalf of the National Class and, alternatively, the Subclass)

285. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

286. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

287. Defendants owed Plaintiff and the Classes a duty to design the Products in a reasonable manner.

288. The design of the Products was defective and unreasonably dangerous, causing exposure to chemicals with toxic and carcinogenic effects.

289. The design of the Products caused them to be not fit, suitable, or safe for their intended purpose. The dangers of the Products outweighed the benefits and rendered the products unreasonably dangerous.

290. There are other Hair Straighteners and/or Hair Relaxers products that do not use these chemicals that increase the risk of cancer.

291. The risk/benefit profile of the Products was unreasonable, and the Products should have had stronger and clearer warnings or should not have been sold in the market.

292. The Products did not perform as an ordinary consumer would expect.

293. The Defendants' negligent design of the Products was the proximate cause of damages to the Plaintiff and the Class members.

294. Plaintiff and Class members have suffered damages in an amount to be determined at trial and are entitled to any incidental, consequential, and other damages and other legal and equitable relief, as well as costs and attorneys' fees, available under law

COUNT XII

Violation of the Magnuson-Moss Act, 15 U.S.C. § 2301
(On behalf of the National Class and, alternatively, the Subclass)

295. Plaintiff incorporates by reference all preceding allegations as though fully set forth herein.

296. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

297. The Magnuson-Moss Act contains, in pertinent part, the following definitions:

> (1) The term "consumer product" means any tangible personal property which is distributed in commerce and which is normally used for personal, family, or household purposes (including any such property intended to be attached to or installed in any real property without regard to whether it is so attached or installed)
>
> (3) The term "consumer" means a buyer (other than for purposes of resale) of any consumer product, any person to whom such product is transferred during the duration of an implied or written warranty (or service contract) applicable to the product, and any other person who is entitled by the terms of such warranty (or service contract) or under applicable State law to enforce against the warrantor (or service contractor) the obligations of the warranty (or service contract).
>
> (4) The term "supplier" means any person engaged in the business of making a consumer product directly or indirectly available to consumers.
>
> (5) The term "warrantor" means any supplier or other person who gives or offers to give a written warranty or who is or may be obligated under an implied warranty.
>
> (7) The term "implied warranty" means an implied warranty arising under State law (as modified by sections 2308 and 2304(a) of this title) in connection with the sale by a supplier of a consumer product.

15 U.S.C.A. § 2301.

298. Plaintiff and members of the Classes are "consumers". 15 U.S.C. § 2301(3).

299. Defendants are a "supplier" and "warrantor." 15 U.S.C. § 2301(4) and (5).

300. This is a claim arising out of state law, per 15 U.S.C. § 2301 (7).

301. Defendants impliedly warranted that the Products would be free of defects at the time of delivery, and the Products carried an implied warranty of merchantability.

302. Defendants breached its warranties by offering for sale and selling the Products that were by design and construction defective and unsafe, thereby subjecting Class members who purchased the Products to damages and risks of loss and injury.

303. Defendants have breached and continues to breach its written and implied warranties of safety, thereby damaging Plaintiff and the Classes, when their Products fail to perform as represented due to an undisclosed Defect.

304. As a result of Defendants' continued breach of its warranties, Plaintiff and Class members have suffered damages.

305. Plaintiff and the Classes seek full compensatory and consequential damages allowable by law, appropriate equitable relief including injunctive relief, a declaratory judgment, a court order enjoining Defendants' wrongful acts and practices, restitution, attorney's fees and costs, and any other relief to which Plaintiff and the Classes may be entitled.

COUNT XIII

Punitive Damages
(On behalf of the National Class and, alternatively, the Subclass)

306. Plaintiffs incorporate by reference all preceding allegations as though fully set forth herein.

307. Plaintiff brings this claim against Defendants, on behalf of herself and the other members of the Nationwide Class, and, alternatively, the State subclass.

308. Defendants knew or should have known that the chemically straightening and/or hair relaxing products contained chemicals that increase the risk of cancer and thereby unfit for human usage.

309. Defendants failed to disclose these facts to the consuming public, including Plaintiffs and Class Members.

310. Defendants risked the safety of recipients of its products, including Plaintiffs and proposed Class members, when Defendant knew increased risk of cancer from the chemicals in the Defendants' Hair Straighteners and/or Hair Relaxers products and suppressed this knowledge from the general consuming public, including Plaintiffs and Class Members.

311. Defendants made the conscious decisions not to redesign, re-label, warn or inform the unsuspecting recipients of its harmful Hair Straighteners and/or Hair Relaxers products, despite knowing that the product was defective.

312. Defendants knew or should have known that this conduct would result in injury or damage.

313. Defendants' intentional, reckless, fraudulent, and malicious failure to disclose information about the health and safety risks of using the Hair Straighteners and/or Hair Relaxers products deprived Plaintiffs and Class Members the necessary information to enable them to weigh the true risks of using Defendants' products against their benefits.

314. Defendants acted with wanton and reckless conscious indifference and utter disregard of the consequences of their actions upon the health, safety and rights of others, including Plaintiffs and proposed Class members.

315. As a direct and proximate result of Defendants' conscious and deliberate disregard for the rights and safety of consumers such as Plaintiffs and proposed Class members, Plaintiffs

and proposed Class members have suffered severe and permanent economic injuries as set forth above. Defendants' outrageous conduct warrants an award of punitive damages.

316. The above conduct of Defendants was committed with knowing, conscious, and deliberate disregard for the rights and safety of consumers, including Plaintiffs and Class members, thereby entitling Plaintiffs and Class members to punitive damages in an amount appropriate to punish Defendants and deter them from similar conduct in the future.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff, individually and on behalf of the other members of the Classes alleged herein, respectfully request that the Court enter judgment in his favor and against Defendants as follows:

A. For an order certifying the Classes under Rule 23 of the Federal Rules of Civil Procedure and naming Plaintiff as the representatives for the Classes and Plaintiff's attorneys as Class Counsel;

B. For an order declaring the Defendants' conduct violates the causes of action referenced herein;

C. For an order finding in favor of Plaintiff and the Classes on all counts asserted herein;

D. For compensatory, statutory, and punitive damages in amounts to be determined by the Court and/or jury;

E. For prejudgment interest on all amounts awarded;

F. For an order of restitution and all other forms of equitable monetary relief;

G. For injunctive relief as pleaded or as the Court may deem proper; and

H. For an order awarding Plaintiff and the Classes their reasonable attorneys' fees and expenses and costs of suit.

DEMAND FOR JURY TRIAL

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiff demands a trial by jury of any and all claims in this Complaint and of any and all issues in this action so triable as of right.

Dated: November 30, 2022

Respectfully submitted,

POULIN | WILLEY | ANASTOPOULO, LLC

BY: */s/ Paul Doolittle*
Paul Doolittle, Esq.
SC Attorney ID: 66490
Blake G. Abbott, Esq.
SC Attorney ID: 104423
32 Ann Street
Charleston, SC 29403
(P): (843) 614-8888
(F): (843) 494-5536
Email: pauld@akimlawfirm.com
Email: blake@akimlawfirm.com

ATTORNEYS FOR PLAINTIFF