

## *Right to Know: Exposing toxic fragrance chemicals in beauty, personal care and cleaning products.*

### Executive Summary

In late 2016 Breast Cancer Prevention Partners (BCPP) set out to investigate to what extent major companies that make beauty, personal care and cleaning products were hiding unlabeled toxic chemicals in their products. We embarked upon this research project because the scientific literature and our prior product testing indicated that chemicals linked to cancer, birth defects, endocrine disruption and other adverse health effects were being used in fragranced beauty, personal care and cleaning products. Yet the lack of any legislatively mandated labeling requirement for cleaning products or fragrance ingredients was leaving consumers in the dark regarding chemicals of concern in the products they bring into their homes every day.

What is creating this “buyer beware” situation? A gaping federal labeling loophole combined with a self-regulated fragrance industry allows dozens — sometimes even hundreds — of chemicals to hide under the word “fragrance” on the product labels of beauty and personal care products. The same is true for cleaning products, but with an added dilemma: No federal law requires the labeling of the vast majority of *any* ingredient in these products. The presence of unknown, unlabeled toxicants is cause for serious concern for consumers and workers, because more and more scientific evidence suggests that unsafe chemical exposures in our everyday lives are adding up to harm.

BCPP and our partners were particularly interested in looking at products marketed to vulnerable populations such as children and women of color, as well as products marketed by celebrities, with pink ribbons or with claims by mainstream manufacturers that their products are “good for the environment/green.” What we found was shocking and surprising: The most hazardous product of all was a children’s shampoo marketed to kids of color. Several of the products that had the most hazardous chemicals were *fine fragrances* endorsed by popular celebrities. And our most counterintuitive report finding of all: Many of the personal care products we tested contained more hazardous chemicals than the cleaning products we tested!

#### **The 10 products that ranked the most hazardous in terms of the highest number of chemicals linked to cancer, hormone disruption, developmental or reproductive toxicity and respiratory effects:**

1. **Just for Me Shampoo:** A children’s shampoo, from a hair-relaxing kit marketed to kids of color by Strength of Nature.
2. **JLo Glow Perfume:** A fine fragrance made by Designer Parfums and endorsed by music, television and film icon Jennifer Lopez.
3. **Kaboom with OxiClean Shower Tub & Tile Cleaner:** Marketed as a “great cleaner that is safe and friendly to use,” made by Church & Dwight Co.
4. **Olay Luminous Tone Body Lotion:** Made by Procter & Gamble and marketed for its anti-aging qualities.
5. **Axe Phoenix Body Spray:** A body spray made by Unilever and marketed to young men using an overtly sexual ad campaign.
6. **Marc Jacobs Daisy Perfume:** Another Coty fragrance that carries the famous designer’s name and uses beatific, radiant young girls in its marketing campaigns.
7. **Taylor Swift Wonderstruck Perfume:** A Revlon fine fragrance endorsed by the beloved pop country singer Taylor Swift.
8. **Organix (OGX) Shampoo:** A Johnson & Johnson product marketed as part of a “green/sustainable” line of products to young women.
9. **Formulation 64-RP:** An industrial cleaner/disinfectant used by custodians, firefighters and others.
10. **White Linen Perfume:** Created by Estée Lauder in 1978, marketed as “a beautiful perfume” for women young and old.

## The Lack of Fragrance Industry Regulation

Fragrance is big business in the United States and abroad. The value of the North American flavor and fragrance market amounted to approximately US\$6 billion in 2015 and is forecasted to reach \$7.42 billion by 2020<sup>i</sup>. Globally, the fragrance market was nearly \$70 billion in 2017, and by 2024, it is estimated to be worth about \$92 billion.<sup>ii</sup> In 2016, personal care and fine fragrances made up of 75% of fragrance sector sales, with the other 25% going to household goods.<sup>iii</sup>

Despite the vast and growing size of the fragrance industry, there's no one minding the store. The fragrance industry is entirely self-regulated, with no federal or state guidelines of any kind regulating 1) the safety of fragrance chemicals; 2) the disclosure of fragrance ingredients from fragrance suppliers to manufacturers, or from manufacturers to regulatory agencies or consumers; or 3) the fragrance supply chain itself (i.e. raw material providers, fragrance houses, perfumers, and so on). One consequence of this is that even the companies that manufacture beauty, personal care and cleaning products themselves are more often than not denied access — or are only granted limited access — to information about the constituent ingredients of the fragrances they are purchasing from fragrance suppliers, even though they bear responsibility for the safety of *all* the ingredients in products that bear their label. Ironically, even if these companies wanted to disclose fragrance ingredients to their customers, they might not be able to do so.

Fragrance industry self-regulation is carried out by the International Fragrance Association (IFRA), which represents the collective interests of the fragrance industry and is estimated to represent 90% of fragrance suppliers. IFRA develops its own, voluntary safety guidelines which its members are expected to follow. However, most of the scientific studies that IFRA and its research arm the Research Institute for Fragrance Materials use to claim the safety of fragrance chemicals are conducted by the major fragrance manufacturers themselves and have never been published in peer-reviewed scientific journals.<sup>iv</sup> IFRA maintains a palette of 4,000 fragrance ingredients used by 900 expert perfumers to create the 60,000 to 80,000 unique proprietary fragrance blends made up of between 50 and 250 ingredients that they create each year<sup>v</sup> for personal care products, cosmetics, cleaning products and fine fragrances.

Through an ever-increasing body of scientific literature as well as biomonitoring and environmental monitoring data, we are witnessing the unintended consequences of “better living through chemistry”; toxic chemicals are pervasive in our personal care and other consumer products; the food we eat; the water we drink; the air we breathe; our lakes, public land, marine life and wildlife; even the breast milk of nursing mothers and the cord blood of our newborns. And, as our product testing demonstrates, fragrance chemicals are contributing to this problem.

**“Three out of four chemicals linked to adverse health effects detected in the products we tested are fragrance chemicals.”**

## Investigating the Extent of the Problem

### What we did

We tested 100 personal care products and 40 cleaning products using semi- and non-targeted chemical analysis methods. The products were purchased in Dollar Stores, big box retail stores and online and used in institutional and domestic cleaning as well as “touchless” car wash settings. We focused our selection on four categories of products: 1) shampoo; 2) body lotion; 3) products used solely for their scent (perfumes, body sprays, deodorants, and feminine sprays and wipes); and 4) leave-in hair products (conditioners and treatments). The products we tested were purchased by 25 partners in 16 U.S. States and one Canadian Province.

### Testing methods

We hired two independent third-party testing laboratories. One assessed volatile organic compounds (VOCs) of all products, and the other conducted two-dimensional gas chromatography (GCxGC) Time-of-Flight (TOF) analysis on a subset

personal care and cleaning products. The VOC testing did not provide much information due to the need to dilute the samples and a relatively high level of detection. However, our testing of a subset of the 140 products using GCxGC Time-of-Flight provided a rich data set. These included 25 personal care products and seven cleaning products. The number of individual chemicals identified ranged from 46 to 229 unique compounds per product. It is important to note that the number of chemicals identified in each product does not necessarily reflect the number of intentionally added ingredients because many botanical and synthetic ingredients are made up of multiple constituent chemicals.

### The identification of secret fragrance chemicals

We used a targeted strategy for the 25 personal care products analyzed in order to identify unlabeled fragrance ingredients. Because the ingredients in beauty and personal care products are legally required to appear on the product label, except for those used in “fragrance,” we first identified the chemicals that were detected through the TOF analysis that also appeared on the IFRA [ingredient transparency list](#). We then identified health hazards associated with these fragrance ingredients, then attempted to match the labeled ingredients that we identified to the non-fragrance ingredients found in the Time-of-Flight testing. An ingredient that appeared on the IFRA ingredient transparency list, but did not appear on the label, was deemed a “fragrance chemical.” We also identified common contaminants found via the TOF tests. We used the [Chemical Hazards Data Commons](#) developed by the Healthy Building Network to review each chemical compound detected for links to chronic health effects.

### Chronic Health Hazards by Product

Product Name	Carcinogens	Hormone Disruptors	Respiratory Toxicants	Developmental Toxicants	Total number of chemicals linked to chronic health effects
Aveda Hand Relief	1	3	0	1	5
Aveeno Body Lotion	1	4	0	2	5
Axe Phoenix	5	8	2	4	13
Blue Magic Conditioner	1	4	0	1	5
Burt's Bees Baby Shampoo	1	5	0	0	6
Dark and Lovely Relaxer Crème	0	4	2	2	6
Dove Antiperspirant	1	7	0	2	8
Fabuloso	2	4	2	1	7
Formulation 64-RP	1	9	1	2	10
Garnier Shampoo	0	6	1	3	7
Herbal Essences Conditioner	2	6	0	1	7
JLo Glow	3	15	1	4	18
Jo Malone	3	7	2	1	10
John Frieda	2	7	0	1	8
Just for Me Shampoo	4	19	3	6	24
Kaboom	4	12	0	5	15
Marc Jacobs Daisy	2	12	0	5	14
Olay Body Lotion	2	13	0	3	15
Old Spice Deodorant	1	3	0	0	4
Organix Shampoo	2	13	0	3	14
Pantene Shampoo	1	3	0	0	4
Resolve	2	7	0	2	9
Shea Moisture	0	4	0	1	4
Summer's Eve Fresh Spray	3	7	0	1	8
Taylor Swift Wonderstruck	3	12	0	4	14
Totally Awesome	2	6	1	5	8
Triple Lanolin Lotion	1	9	0	2	10
WD-40	0	2	0	0	2
Wen Almond	1	5	1	2	8
Wen Pom	0	0	1	1	2
White Linen	3	7	1	2	10
Yellow Soap	0	6	1	4	8

Values indicate the number of carcinogens, hormone disruptors, asthmagens and developmental toxicants in each product. Some chemicals have more than one potential chronic health hazard, so the totals for carcinogens, hormone disruptors, respiratory toxicants and developmental toxicants may be greater than the total number of chemicals linked to chronic health effects.

## What We Found

Most unsettling was the report’s finding that the vast majority of the chemicals we detected that were associated with chronic health effects are used in fragrance.

**“The report’s most shocking finding is that fragrance chemicals made up the vast majority of chemicals linked to chronic health effects in beauty and personal care tested.”**

Of the 124 chemicals with chronic health effects, 99 of those were listed on the IFRA fragrance palette.

The table below illustrates the number of chemicals linked to chronic health effects by product, as well as the number of fragrance ingredients linked to chronic health effects. In most products, the vast majority of chemicals with chronic health effects are used in fragrance.

### Products with Fragrance Chemicals Linked to Chronic Health Effects

Product Name	Product Type	Parent Company	Number of IFRA chemicals linked to chronic health effects	Total number of chemicals linked to chronic health effects	Percent of chemicals with chronic health effects that can be found in fragrance
Just for Me Shampoo	shampoo	Strength of Nature	17	24	70.8%
JLo Glow	fragrance	Designer Parfums	15	18	83.3%
Kaboom with OxiClean Shower Tub & Tile Cleaner	shower, tub and tile cleaner	Church & Dwight Co	10	15	66.70%
Olay Luminous Tone Moisturizer	body lotion	Procter & Gamble	14	15	93.3%
Axe Phoenix	body spray	Unilever	11	13	84.6%
Marc Jacobs Daisy	fragrance	Coty	14	14	100.00%
Organix Shampoo	shampoo	Johnson & Johnson	14	14	100.00%
Taylor Swift Wonderstruck	fragrance	Revlon	13	14	92.9%
Formulation 64-RP	industrial cleaner	Champion Chemical	7	10	70.00%
White Linen	fragrance	Estée Lauder	10	10	100.00%
Jo Malone Peony & Blush Suede Cologne	fragrance	Estée Lauder	9	10	90.00%
Triple Lanolin Aloe Vera Massage Lotion	hand lotion	BlueCo Brands	10	10	100.00%
Resolve Stain Remover	carpet cleaner	Reckitt Benckiser	6	9	66.70%
Dove Advanced Care Antiperspirant	deodorant	Unilever	8	8	100.00%

John Frieda 3-Day Straightening Spray	leave-in hair products	Kao	8	8	100.00%
Summer's Eve Fresh Spray	freshening spray	Prestige Brands	6	8	75.00%
Totally Awesome Bang Bathroom and Shower Cleaner	shower, tub and tile cleaner	LA's Totally Awesome	6	8	75.00%
Wen Sweet Almond	conditioner	WBCD Hair and Body	8	8	100.00%
Yellow Soap	car wash soap	Unknown	6	8	100.00%
Fabuloso Multipurpose Cleaner — Lavender	multipurpose cleaner	Colgate-Palmolive	5	7	71.4%
Garnier Fructis Sleek & Shine Shampoo	shampoo	L'Oréal	7	7	100.00%
Herbal Essences Color Me Happy Shampoo	shampoo	Procter & Gamble	6	7	85.7%
Burt's Bees Baby Shampoo & Wash	baby shampoo	Clorox	6	6	100.00%
Dark and Lovely Relaxer Crème	relaxer	L'Oréal	5	6	83.30%
Aveda Hand Relief Cream	hand lotion	Estée Lauder	5	5	100.00%
Aveeno Body Lotion	body lotion	Johnson & Johnson	4	5	80.00%
Blue Magic Bergamot Conditioner	style gel	J Strickland & Co	5	5	100.00%
Old Spice Deodorant	deodorant	Procter & Gamble	4	4	100.00%
Pantene Pro-V Shampoo	shampoo	Procter & Gamble	3	4	75.00%
Shea Moisture	curl enhancer	Sundial Brands	4	4	100.00%
WD-40	multiuse lubricant	WD-40 Company	1	2	50.00%
Wen Pomegranate	conditioner	WBCD Hair and Body	2	2	100.00%

Fragrance chemicals are defined as those listed on the IFRA fragrance palette (<http://admin-ifra.alligence.com/Upload/Docs/Transparency%20list.pdf>). Chemicals listed on the IFRA palette may serve functions other than providing a scent to the product.

Products are sorted in descending order based upon the total number of chemicals linked to chronic health effects (carcinogens, hormone disruption, developmental or reproductive toxicity, and respiratory effects). Products in green are personal care products.

## Implications for Public and Environmental Health

Our tests revealed a wide range of chemicals linked to adverse health and environmental impacts in personal care and cleaning products. The 32 products we tested via Time-of-Flight had hidden chemicals linked to cancer, asthma, reproductive toxicity, endocrine disruption and aquatic toxicity. While this report does not quantify the concentration of each chemical, the presence of *unlabeled* chemicals linked to such a broad array of health concerns should raise a red flag for consumers, given that most of us regularly pour, spray and rub a multitude of fragranced personal care products on our bodies every day. Some communities are especially vulnerable to unsafe chemical exposures, but without full ingredient disclosure, they have no way to avoid chemicals of concern. Vulnerable and highly exposed populations include children, women of color, custodians, domestic workers and cosmetologists.

## Policy Solutions

In the best of all worlds, we would have a comprehensive federal law requiring full disclosure of ingredients—including fragrance chemicals—in personal care, cosmetic and cleaning products, so everyone would have the information they need to bring safer products into their homes and their workplaces. The reality has been, however, that efforts to federally mandate full ingredient disclosure in cleaning products and personal care products have been consistently blocked by industry trade associations lobbying against ingredient transparency. While some leading manufacturers support ingredients transparency, these trade associations have not kept pace with their industry's best practices around ingredient disclosure and instead cater to their membership's lowest common denominator.

## What Cosmetic and Cleaning product Companies Should Be Doing

**Fully Disclose ALL Ingredients:** Provide full disclosure of all ingredients in the product, including all fragrance ingredients and containments of concern.

**Adopt a Comprehensive Chemical Management Plan:** Formulators, manufacturers and retailers should develop and make public a chemical management policy for identifying hazardous chemicals in their products, removing them and replacing the toxic substances with safer alternatives. Elements should include:

- **Full ingredient disclosure including the constituent ingredients in fragrance, flavoring and colorants as well as contaminants of concern.**
- **Restricted Substance List, or Red List:** Companies should identify a “do not use list” of toxic chemicals, also referred to as a “restricted substances list” or “red list.” We recommend companies consult the BCPP and the Campaign for Safe Cosmetics Red Lists of Chemicals of Concern in Cosmetics and Cleaning Products to create their restricted substances list.
- **Safer substitution:** Companies should replace toxic chemicals with safer alternatives and ensure that substitutes are fully tested for safety before being incorporated into the product.
- **Provide Full Transparency of the Chemical Management Plan:** Manufacturers should be fully transparent regarding all aspects of their chemical management plan.
- **Set Aggressive and Transparent Timelines and Benchmarks:** For each step in the process, the manufacturer should develop and publicly disclose their timelines and benchmarks for measuring progress in meeting the goals laid out in their chemical management plan.
- **Strive for continuous improvement:** Manufacturers should strive to improve their policies and practices by monitoring emerging scientific research regarding chemicals of concern.
- **Level the playing field:** Support health-protective federal and state cosmetic safety policies so everyone will be protected from unsafe chemical exposures in the beauty and personal care products they use every day.

### What full fragrance ingredient disclosure looks like:

- Manufacturers require full fragrance ingredient disclosure from their fragrance suppliers.

- Disclosure occurs for all intentionally added fragrance ingredients, regardless of concentration, to consumers. We know fragrance chemicals can be present in a fragrance at much lower levels than 100 ppm — which is the current industry “high bar” for fragrance disclosure. This is especially important for endocrine-disrupting compounds, which can harm human health at extremely low levels of exposure.
- Disclosure occurs throughout a company’s entire product portfolio, including both retail and professional-use products, and global market. Ingredients should be disclosed on the website of the product brand, or on the parent company’s website if there is a direct link from the brand’s website. Fragrance ingredients should also be disclosed on e-commerce retail sites where the company’s products are being sold (e.g., Drugstore.com, or Amazon.com).
- Manufacturers utilize a restricted substances list of fragrance chemicals of concern (a.k.a as a “do not use”) list for companies that formulate their own fragrance and/or be given to a fragrance supplier or independent perfumer, to ensure unsafe chemicals are not being used to formulate fragrances being supplied to the company.

## Conclusion

Consumers and workers have the right to know what’s in their products and should not have to conduct sophisticated laboratory analysis to determine if their beauty, personal care and cleaning products contain toxic chemicals that don’t appear on the label. *Right to Know: Exposing Toxic Fragrance Chemicals in Beauty, Personal Care and Cleaning Products* biggest take-away is that fragrance chemicals made up the vast majority of the chemicals linked to adverse chronic health effects in the beauty and personal care products we tested. This troubling finding argues that elected officials can swiftly reduce the number of toxic chemicals consumers and workers are being exposed to by legislatively mandating full disclosure of the identity – and the safety – of secret fragrance chemicals.

What this report also reveals is that consumers have good reason to wonder and worry about companies that are not being transparent about the ingredients in their products, especially when those products contain “fragrance.” With full disclosure comes both transparency and accountability — without it, manufacturers and retailers can skirt responsibility for the safety of the ingredients in their products, hiding behind a nameless supply chain and a faceless but incredibly powerful group of trade associations.

### Full ingredient disclosure in beauty, personal care and cleaning products benefits everyone.

#### Here’s why:

- Consumers armed with this information can make safer, more informed purchases for themselves and their families;
- Workers can take the necessary steps to protect themselves from unsafe chemical exposures in the workplace;
- Regulators would have the information they need to effectively regulate the \$84 billion<sup>vi</sup> domestic cosmetic industry and the \$61 billion<sup>vii</sup> cleaning product industry;
- Transparency will provide a strong incentive for manufacturers to remove the hazardous ingredients, making products safer for consumers and benefiting our environment by reducing toxic chemicals polluting the air and water; and
- Major multinational companies themselves benefit from a decreased likelihood of reputational risk when unsafe chemicals and fragrance mixtures are revealed through product testing such as ours, or when consumers have severe allergic reactions to a hidden chemical in one of their products.

Everyone has a part to play in addressing the negative impacts on human health and the environment that the lack of full ingredient disclosure and the continued secrecy around fragrance chemicals creates. We call on the manufacturers, fragrance suppliers and trade associations that read this report to hear and respond to the public’s absolute right to know and demand for full disclosure of ingredients, including fragrance chemicals. State and federal elected officials should swiftly adopt laws that require full ingredient disclosure. In the meantime, companies should give consumers the transparency they want and deserve by raising a voluntary, high bar of their own for fragrance disclosure.

<sup>i</sup> <https://www.statista.com/statistics/475095/value-north-american-flavor-and-fragrance-market/>

<sup>ii</sup> <https://www.statista.com/statistics/259221/global-fragrance-market-size/>

<sup>iii</sup> <https://www.statista.com/statistics/548127/value-global-flavor-and-fragrance-market-region/>

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- <sup>iv</sup> Women’s Voices for the Earth (2015). Unpacking the Fragrance Industry: Policy Failures, the Trade Secret Myth and Public Health [internet]. [cited 2018Jun20]. Available from: <https://www.womensvoices.org/wp-content/uploads/2017/10/FragranceReport2017Update.pdf>
- <sup>v</sup> Ingredients and Transparency [internet]. International Fragrance Association. 2015 [cited 2017 Jan 12]. Available from: <http://www.ifraorg.org/en-us/ingredients#.WygcyIVKi70> and <http://admin-ifra.alligence.com/Upload/Docs/Transparency%20list.pdf>
- <sup>vi</sup> Duncan E. Cosmetics Consumer Behavior in the U.S. [internet]. Statista. [cited 2018 Jun 20]. Available from: <https://www.statista.com/topics/3138/cosmetics-consumer-behavior-in-the-us/>
- <sup>vii</sup> Duncan E. Cosmetics Consumer Behavior in the U.S. [internet]. Statista. [cited 2018 Jun 20]. Available from: <https://www.statista.com/topics/1277/cleaning-products-industry-in-the-us/>