

## Introduction

WHEN I STARTED THE MAGNIFECO BLOG IN 2008, it was on the heels of *Vanity Fair*'s annual green issue and just before *Vogue*'s first green issue. I fell in love with eco-fashion, the ethos and all the designers striving to make fashion better. I was living in Tokyo at the time and thought women like me and conscious consumers everywhere needed a “daily eco-fashion find.” I picked a name that might resonate in many languages. “Magnifeco” is an exclamation of delight in finding something that is “extraordinarily fine, superb and *eco*.” The blog features products from around the globe and is read in 120 countries.

Since then, even though fashion and beauty are now regularly prefixed with words like “green,” “natural,” “environmentally friendly,” “eco,” “healthy” and “sustainable,”<sup>1</sup> the industry is not as healthy as it should be. There are still dark sides to both industries: dangerous chemicals in everyday personal care products, deadly pesticides used to grow cotton, child labor in gold mining and stone cutting, deforestation to make fashion, and toxic leather facilities. Consumers have the power to change these situations, if only they knew. Many of those issues could be easily avoided and then eradicated.

That's why I wanted to write this guide. Until consumers — you — know more about the dirty secrets of each of these sectors, and can start shifting your dollars towards brands and designers doing things differently, nothing will change.

The content in the coming pages can be a little heavy. It's laid out to share the research that NGOs and activists are conducting, research that

we as consumers should know, but that rarely makes the pages of beauty or fashion magazines. The Rana Plaza factory collapse in Bangladesh in 2013 brought to light some of the hazardous working conditions that are a result of fast fashion, but there's more to know.

For those who just want to know what to buy, each chapter has a shopping guide of suggested brands, and some details about why they are “better.” Plus, in the fashion chapters there are selected “game changers” — designers who are breaking the mold and offering products that are truly “magnifeco.”

No one paid to be in the shopping guides. The brands listed were chosen because they represent a cross-section of values, style, price and availability. The lists could have gone on and on, and new brands are popping up daily. However, in the interest of not making this book any heavier, come to [Magnifeco.com](http://Magnifeco.com) for more.

## Chapter 1

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### Beauty

“For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death.”<sup>1</sup>

— Rachel Carson,  
citizen-scientist and author of *Silent Spring*

A SWIPE OF A LIPSTICK or a pass of deodorant, most of us are thinking about the external effects of those efforts: if the latest lip color will make our eyes “pop” or the underarm scent will cover body odor. Yet how many of us can honestly say we think about the effects of those products on us internally — the possible lead in the lipstick<sup>2</sup> or whether our deodorant contributes to breast or testicular cancer?<sup>3</sup> Although we are growing more conscious about what we put *inside* our bodies, we often overlook what we put *on* our bodies, next to our largest organ (our skin). However, with the emergence of medicinal applications like nicotine patches, we know the medical profession recognizes how absorbent skin is. Maybe it’s time we gave this a second thought.

Although US Food and Drug Association (FDA) was set up to regulate cosmetic products and their ingredients in 1938,<sup>4</sup> the cosmetic provisions have been amended just three times since then.<sup>5</sup> Even though it was after then that the chemical age really emerged and synthetic chemicals entered every aspect of our life, including our personal care



products. Most of the products we know and love for their ability to make our life easier, from hair spray and brushless shaving cream to plastic and polyester, are all based on synthetic chemicals and were all created *after* the FDA. We learned to love what chemicals could make; we just didn't consider if there could be a downside.<sup>6</sup> When 20,000 people lost their lives in Bhopal, India, after a chemical gas spill from a pesticide factory,<sup>7</sup> we started to understand what occurs from too much rapid exposure to chemicals. However, what we don't know are the long-term effects of small doses of chemicals on our health or the environment.<sup>8</sup>

If we are to make any changes to our health, and for the health and safety of future generations, the choices we make in beauty (and fashion) matter. So, while we don't really get to choose *if* we opt in, we do get to choose *how* we opt in — and where we are willing to change.

I say this because some things you won't want to change (we all have our favorite product or cosmetic that we can't imagine parting with). This chapter is meant to give you the tools to make informed decisions and choose products that are better for you (and the environment) — when you are ready. Some you will change immediately — you might drop the book and run to the bathroom and start right away — while others might be a challenge. Do what you can, when you can.

### **Who's Protecting Us?**

A common misconception is that personal care and beauty products are "FDA tested" or "FDA approved," that the FDA monitors these products and there is a safeguarding process to test and register the safety of all the products we use.

This is true for pharmaceuticals and drugs but not personal care products. Medicines are actively monitored and require several stages of safety testing. Chemical additives in personal care products, on the other hand, require no premarket testing. When it comes to personal care products, the FDA states quite clearly on its website homepage, "The FDA does not approve cosmetics." This includes shampoos, soaps, shaving creams, perfumes, colognes and makeup.

Rather, the role of the FDA is to compile the lists of chemicals and additives that companies use, and wait for complaints. Since its 1938 launch, the FDA has banned only 8 ingredients, and restricted 3, bringing

the total of banned or restricted to 11.<sup>9</sup> Compare this to Canada that has a hotlist of over 600 banned or restricted ingredients or the European Union (EU) that has stricter rules and regulations and has banned or restricted 1,300 chemicals from cosmetics. It's a large disparity and concern, given that diseases and illnesses seem to be on the rise and exposure to chemicals is thought to be a contributing factor.<sup>10</sup> For example, published statistics in the United States show that:

- 1 in 2 men and 1 in 3 women will be diagnosed with cancer in their lifetimes.<sup>11</sup>
- 1 in 8 women will be diagnosed with breast cancer. Only about 10 percent of these women carry a gene for the disease.<sup>12</sup>
- Just under half of all pregnancies end in miscarriage or produce a child born with a birth defect or chronic health problem.<sup>13</sup>
- There is a rise in genital birth defects such as hypospadias (the opening of the urethra develops on the shaft, not at the tip, of the penis) and cryptorchidism (undescended testicles, a risk factor for poor semen quality and testicular cancer).<sup>14</sup>

The numbers aren't noticeably better in Canada:

- Testicular cancer is the most common cancer among young men between 15 and 29 years old.<sup>15</sup>
- On average, every day 67 Canadian women will be diagnosed with breast cancer and 14 will die.<sup>16</sup>
- Asthma is the most common chronic disease of children in Canada, affecting 12.5 percent of children,<sup>17</sup> and it's rising.

Personal care and beauty products use about 12,000 different chemicals, and nearly 90 percent of them have never been assessed for their impact on long-term health.<sup>18</sup> Chemical ingredients, for which there is no safety information publicly available, are found in almost every product on the market. In addition, ingredients known to be linked to cancer can be found in over one-third of cosmetics and personal care products.<sup>19</sup> No one is protecting us. It's up to the consumer to decide what is safe. It's up to you.

This isn't just a "girl" problem. While I call this chapter "Beauty" and the FDA considers everything from soap to shaving cream to makeup to be "cosmetics," this affects us all. This is a personal care product problem. Think about your bathroom, the products lining your shower, around the sink, in your cosmetic case or your shaving kit. It is estimated that the average man uses six personal care products a day, containing more than 85 different chemicals, while women use double, averaging around 168 chemicals.<sup>20</sup> Chemicals that get absorbed into our skin, inhaled, even ingested. What doesn't get into us either contributes to the toxicity of our home or we wash them down the drain and send them into our waterways.

### The Body Burden

In 1962, American marine biologist and conservationist Rachel Carson published *Silent Spring*, a book credited with advancing the global environmental movement. In it, Carson suggested that the planetary ecosystem was reaching the limits of what it could sustain.<sup>21</sup> While recognizing modern chemistry had created powerful tools for society, she urged caution. In doing so, she became one of the first to sound the alarm on the long-lasting effects of chemicals, not just to the environment, but to all living organisms (including humans). She was speaking, in particular of pesticides like DDT, which was later banned in 1972, but she knew she had to speak up when she testified before Congress (in 1963) that it should be a basic human right to be protected from poison. She urged the committee to give serious consideration to a "much neglected problem. That of the right of the citizen to be secure in his own home against the intrusion of poisons applied by other persons." She implored that this freedom from chemical intrusion should be a basic human right.<sup>22</sup>

Carson was attacked by the chemical industry and called out as an ignorant and emotional woman.<sup>23</sup> It took a full decade after her testimony before Congress for the government to pass, and begin to enforce, pollution controls in factories and hazardous waste dumps.<sup>24</sup> But it turns out she was right to worry.

Not only can we not secure our homes from toxic chemicals, but we can't keep unwanted chemicals out of our *bodies* either. In 2004 the

Environmental Working Group (EWG), with the help of the Red Cross, measured pollutants from blood taken randomly from the umbilical cords of newborns across the US. The researchers detected a total of 287 chemicals, including 180 that cause cancer in humans or animals.<sup>25</sup> Many of the chemicals we worry about today were already present in infants before they are born.

This is commonly referred to as the *body burden*: a stockpile of chemicals that are in your body without your knowledge or idea of source. In 2001 the Centers for Disease Control and Prevention (CDC) began a large-scale body burden study to “determine which chemicals get into Americans and at what concentrations.”<sup>26</sup> The first year, researchers tested for 27 chemical compounds; two years later, they tested for 116. This is one of the ways we know that certain chemicals are *persistent*. For example, polychlorinated biphenyls (PCBs), odorless mixtures of chlorinated compounds used for coolants in transformers and fluorescent bulbs, contaminated air, water and soil during their manufacture, use and disposal. PCBs became so ubiquitous that they were banned in 1977.<sup>27</sup> Yet body burden studies reveal not only are they still found in us but they have proven to be world travelers, showing up in geographic locations far from where they started.<sup>28</sup> For example, Inuit nursing mothers in Canada’s North measure the highest PCB levels in their milk of any women in the world.<sup>29</sup> Body burden studies can show us which chemicals bioaccumulate in the human body, but they can’t show any connections between exposure and source or exposure and illness.

In Europe and Canada, this has been enough to prompt radical changes in the way toxic chemicals are regulated. But in the US? it’s different; even with Rachel Carson’s forewarning and the results of the CDC’s body burden studies, the US has been slow to ban or restrict chemicals. As McKay Jenkins puts it, in his book *What’s Gotten Into Us?* “Chemicals in Europe are considered guilty until proven innocent. Here in the United States, it is the other way around.”<sup>30</sup>

Sadly, there is no general agreement about useful or safe methods for reducing body burdens. The wisest strategy is prevention and overall chemical reduction. Reducing the toxicity of the air we breathe, the water we drink and the food we eat will take collective, legislative efforts. But reducing your toxic load from personal care products can start now.

## Conventional Products

Some of the issues with conventional products can be changed; firstly, our usage — or over-usage. When was the last time you read the instructions or used a “pea-sized” amount of product as directed? Some products should never be used on open skin; some should be used in a well-ventilated area. When toxicology studies are done, they are done on recommended usage that consumers often do not follow.

Then other issues are more difficult to avoid. For example, even if you are armed with all of the latest chemicals to avoid — the “toxic ten,”<sup>31</sup> the “dirty dozen,”<sup>32</sup> etc. — personal care products do not always display ingredients on their labels. Plus, numerous studies have revealed dangerous ingredients within products that were *not* listed on their labels, from the lead in lipsticks<sup>33</sup> to phthalates in popular perfume brands<sup>34</sup> and in conventional men’s products.<sup>35</sup>

Lastly, there is the concern about chemical combinations. For example, what happens when you combine using your favorite aftershave with the face moisturizer of another brand? Or a foundation with a different brand moisturizer? Even if someone is in the lab of the manufacturer testing for safety, you can bet no one is testing how safely their chemicals interact with chemicals of other brands. Conventional products and their synthetic chemicals react with each other and affect our bodies in ways that scientists haven’t even begun to map out.<sup>36</sup>

Given the potential interactions between chemicals, added to our body burden and mixed in with our individual genetics, it is nearly impossible to know all of the effects they will have on us. We are counting calories and steps and lessening our body burden with our food choices but completely overlooking what might be the most toxic-laden room in the house: the bathroom. It’s time to start counting chemicals.

## The Watchdogs

Before we get to the nasty ingredients, first you should take comfort and know there are external watchdogs who are keenly interested in safeguarding consumer safety. Most of the information that follows comes from them. They are brave name shamers — when they do toxic studies on products, they are not afraid to share the brands or the names, and their research and efforts offer hope for the future of this industry



and our personal health and wellness. At the very least, the tools they have developed and the reports they write provide more information for consumers.

The **Environmental Working Group (EWG)** is an American public interest group dedicated to using the power of information to protect public health and the environment. Its mission is threefold:

1. To protect the most vulnerable segments of the population — children, babies and infants in the womb — from health problems attributed to toxic contaminants.
2. To replace federal policies, including government subsidies that damage the environment and natural resources, with policies that invest in conservation and sustainable development.
3. To give consumers the tools they need to make the best product buying decisions for their family.

True to its word and supporting the third mission, the EWG has developed one of the best tools for consumers to look deeper into the chemical makeup and toxicity levels of everything from toothpaste to perfume. The Skin Deep® Cosmetics Database ([ewg.org/skindeep](http://ewg.org/skindeep)) launched in 2004, provides online profiles of over 69,000 personal care products. The EWG team of staff scientists compare ingredients on personal care product labels and websites to information in nearly 60 toxicity and regulatory databases. The result: a product hazard rating of 0 to 2 (low hazard), 3 to 6 (moderate hazard) and 7 to 10 (high hazard).

In 2002, EWG, Health Care Without Harm and Women's Voices for the Earth released a groundbreaking report called *Not Too Pretty*. It scientifically tested a wide range of personal care products and found concerning chemicals in more than 70 percent of the products, including shampoos, deodorants, hair gels and fragrance — chemicals that weren't listed on the label.

Presuming that this was just the tip of the iceberg, the "Campaign for Safe Cosmetics" was launched as a coalition of non-profit health and environmental organizations (including the EWG) to further everyone's access to safer personal care products and smarter laws governing cosmetic safety. Its mission is to protect the health of consumers and

workers. It is challenging the personal care products industry to phase out the use of chemicals linked to cancer, birth defects and other serious health concerns and replace them with safer alternatives.

In 2007 the Campaign for Safe Cosmetics released two more scientifically tested studies. Using independent lab testing, it tested 33 lipsticks for lead and proved the urban myth true: lead is found in two-thirds of the samples.<sup>37</sup> The second study, on children's bath products, found 1,4-dioxane, a petroleum by-product and carcinogen that was not listed on any product labels.<sup>38</sup>

The **Environmental Defense** could be called the Canadian equivalent to the EWG. Heralded for leading the way to getting BPA banned from baby bottles, it focuses on critical environmental and health issues in Canada: climate change, toxic chemicals, pollution, endangered species, to name a few. In 2010, the Environmental Defense launched "Just Beautiful." Similar to the Campaign for Safe Cosmetics, the Just Beautiful campaign has two aims: to educate consumers about the toxins found in everyday cosmetic and personal care products and to challenge Canadian cosmetic laws to ensure all products are clean and safe for use.<sup>39</sup>

In 2012, the Environmental Defense published *The Manscape: The Dirt on Toxic Ingredients in Men's Body Care Products*. It tested 17 men's grooming products and found that some of these popular products contained carcinogens and chemicals known to harm male reproductive health: 1,4-dioxane plus phthalates and parabens (which mimic estrogen) that have been linked to risk factors for testicular cancer.<sup>40</sup>

The **Silent Spring Institute** (SSI) is a non-profit research organization in Cape Cod, Massachusetts, working to identify links between chemicals in our everyday environments and women's health, especially breast cancer. The SSI was launched in 1994, after members of the Massachusetts Breast Cancer Coalition called for investigation into elevated breast cancer rates on Cape Cod. The only scientific research organization dedicated to breast cancer prevention, SSI is staffed and led by researchers dedicated to science that serves the public interest. They partner with physicians, public health and community advocates, and other scientists to propel progress in breast cancer prevention. It is named in tribute to Rachel Carson (author of *Silent Spring*) who died of breast cancer just two years after her book was published.

The SSI 2012 study, *Endocrine Disruptors and Asthma-Associated Chemicals in Consumer Products* examined 213 products across 50 product types (shampoo, toothpaste, etc.) and found many detected chemicals were not listed on product labels.<sup>41</sup> It also found well-known endocrine-disrupting phthalates were not present, but less-studied phthalates were, indicating substitution.

The **David Suzuki Foundation** was founded in Canada in 1989 as a solutions-based organization that aims to conserve the environment by providing science-based research, education and policy work. This includes preventing pollutants and toxic chemicals from entering bodies and the environment. In 2010, it published a list of cosmetic chemicals to avoid; the *Dirty Dozen* is available as a printout and consumer guide.

The **Women's Voices for the Earth** (WVE) was formed in Montana in 1995. Identifying that many environmental organizations at the time failed to include women in leadership positions and did not fully recognize the systemic connections between health, class, race and the environment, WVE sought to create a new environmental organization led by women. It works to amplify women's voices to eliminate toxic chemicals that harm health and communities.

In 2010, WVE released *Dirty Secrets*, a report that exposed the dangers of fragrance in cleaning products. It was updated in 2013 to include personal care products, and its 2013 *Chem Fatale* report was the first to explore the health effects of toxic chemicals in feminine care products.

All of these watchdogs are concerned about the overarching topics of environment and human health, but often from different angles, exposing new risks and highlighting conventional products that are affected. Their combined research has significantly shaped this chapter, and when new bodies of research are added, you will find them on [Magnifeco.com](http://Magnifeco.com).

## Chemical Soup

The primary concern of a personal care brand, and the FDA, to be fair, is the immediate safety of the product on the consumer: will it cause reactions or adverse effects? As consumers, we hope, and expect, that products are safe to use in the day to day. But of deeper concern of late are the long-term or lasting effects of chemicals and bioaccumulation. Are our products safe to use over time? Chemicals are in the air, in our

food, in our water and in our bodies before we even choose our beauty or grooming regimen. It's the chemicals we add through our purchasing decisions that we do have control over.

The biggest issues in conventional personal care products are:

- Carcinogens — chemicals that cause cancer
- Teratogens — chemicals that cause birth defects
- Developmental/reproductive toxicants — chemicals that damage the normal development of the fetus, infant or child or damage our reproductive tissues
- Endocrine disruptors — chemicals that can cause damage through their ability to interfere with normal hormone function as the body manages growth, tissue repair and reproduction
- Persistent and/or bioaccumulative chemicals — these resist normal breakdown in the environment, building up in wildlife, the food chain and people, and lingering in body tissues for years or even decades after exposure
- Allergic/immunotoxicity — can manifest as allergic reactions or an impaired capacity to fight disease and repair damaged tissues in the body

## **The Nasty Truth**

The list of the “worst of the worst” varies slightly among the different watchdogs. Not that they differ in perspectives but rather in the timing of the studies and who has the most current information. Gathering research is an expensive and independent endeavor. Each product test can cost between \$100 and \$200, and labs need to know what they think they are looking for and go from there. Each year, new hypotheses get tested and verified, and both the scientific bodies and the watchdogs get more precise about which chemicals are the worst.

As mentioned before, the EU has phased out 1,300 chemicals, almost 1,300 more than the US. As a result, multinational brands use different formulations for products made in Europe and North America, even for the same brand. Since conventional brands already make safer versions for Europeans consumers, the question becomes why don't they do the same here? Some say the change rests on consumers and our lack

of outcry. It's also based on cost: synthetic and chemical ingredients are considerably cheaper than natural ingredients. Why change to a more expensive formula if consumers aren't demanding it? However, everyone agrees the worst are the chemicals that serve as fragrances, surfactants and preservatives.

**Fragrance**, or parfum, is a corporate catch-all for ingredients that may or may not have to do with scent. Due to an antiquated trade-secret law, brands and products are not required to disclose what is in this "special sauce." The word "fragrance" can indicate the presence of up to 4,000 different unlisted ingredients.<sup>42</sup> This proves problematic when you are trying to steer clear of specific chemicals. Sadly, "unscented" products are not necessarily a safer alternative. Often, chemicals used to "un" the scent (of chemicals) are more harmful than the ones that make the scents. The following nasties can lurk in "fragrance":

- Phthalates (pronounced thal-ates): These are common plasticizing ingredients that usually make plastic softer (like your shower curtain). But in fragrance, some phthalates bind to the "scent" and help it linger. Linked to birth defects in the reproductive system of boys at exposure levels typical for about one-quarter of US women, they also lower sperm-motility in adult men. Studies in laboratory animals show significant developmental toxicity and damage to adult reproductive, adrenal, liver and kidney organs.<sup>43</sup>
- Synthetic (artificial) musks: Environment Canada has categorized several synthetic musks as persistent, bioaccumulative and/or toxic, and others as human health priorities.<sup>44</sup> Artificial musks accumulate in our bodies and are often detected in breast milk and blood. They are linked to skin irritation, sensitization and even cancer in laboratory studies and are linked to reproductive and fertility problems in women at high levels of exposure. Separate laboratory studies also suggest that they affect hormone systems. While the European Union has banned use of some synthetic musks in cosmetics and personal care products, in the US all musk chemicals are still unregulated, and safe levels of exposure have not yet been set.<sup>45</sup>
- Styrene: This is a new discovery in the fragrance chemical soup; reports assert it is reasonably anticipated to be a human carcinogen.<sup>46</sup>

**Surfactants** lower water's surface tension, permitting it to spread out and penetrate more easily.<sup>47</sup> Used to make products foamy, sudsy or creamy, they are in shampoo, skin cleanser, body wash, shaving cream, toothpaste, mouthwash, moisturiser, sun cream, mascara and more.

- **1,4-dioxane:** This carcinogen linked to organ toxicity is not added to products directly but rather is a petroleum-derived contaminate that is formed when ingredients react to each other. It is generated through a process called ethoxylation, in which ethylene oxide, a known breast carcinogen, is added to other chemicals to make them less harsh. Avoid sodium laureth sulfate, PEG compounds, chemicals that include the clauses xynol, cetareth and oleth.<sup>48</sup> Ethylene oxide and 1,4-dioxane are prohibited on Health Canada's Cosmetic Ingredient Hotlist. However, the Hotlist does not control for the presence of these chemicals as contaminants.<sup>49</sup>

**Preservatives** are another controversial catch-all. If a product has any water in it — it needs a preservative. Water, over time, equals bacteria and mold. But the corporate incentive to have a long product shelf life comes at the expense of our shelf life.

- **Formaldehyde:** Some cosmetic chemicals are designed to react with water in the bottle to generate a little formaldehyde, which keeps the product from growing mold and bacteria. A 2010 study found that nearly one-fifth of cosmetic products contained a formaldehyde releaser. Formaldehyde is a carcinogen.<sup>50</sup>
- **Parabens:** This family of chemicals are used as antimicrobial preservatives in personal care products, pharmaceuticals and foods. These suspected endocrine disruptors have been detected in human breast cancer tissues, suggesting a possible association between parabens in cosmetics and cancer. Studies indicate that methylparaben applied on the skin reacts with UVB, leading to increased skin aging and DNA damage. Long-chained parabens — isopropylparaben, butylparaben, methylparaben and isobutylparaben — act as estrogens and disrupt hormone signaling.<sup>51</sup> A recent study by scientists at the Harvard School of Public Health linked propylparaben to impaired fertility in women.<sup>52</sup> Parabens may also interfere with male reproductive functions.<sup>53</sup> To top