

# What's in My Makeup Bag?!

Oregon women and their exposure to toxic ingredients from personal care products

## Styling Products

{28% use daily}

May be contaminated with formaldehyde, a cancer-causing chemical.

## Shampoo

{43% use daily}

May contain parabens, chemicals with links to breast cancer.

## Mascara

{39% use daily}

Colors may be made from fossil fuels with toxic impurities.

## Moisturizers

{59% use daily}

May contain oxybenzone, a hormone disrupter

## Lipstick

{28% use daily}

Found to carry lead, which builds up in the body and can harm brain function.



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# Survey says:

## Young women want more information about the ingredients in their personal care products



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Consumers want to believe that their trusted makeup, toiletries and other personal care products are safe. But in reality, most of these products contain untested and unregulated chemicals known to be toxic when ingested, inhaled or absorbed through the skin. Current law does not require personal product manufacturers to list all ingredients on the package even though many pose risks to human health.

In the spring of 2011, Oregon Environmental Council and Metro surveyed more than 1,000 Portland State University (PSU) undergraduate women to learn more about their use of personal care products, their knowledge about the ingredients, and their opinions about manufacturer responsibility to ensure the products they use are safe.

The survey revealed that these women use an average of 10 personal care products a day, most of which contain toxic chemicals. Many of those chemicals are linked to hormone disruption, cancer and other long-term irreversible health impacts. These young women care about the ingredients in the products they use, and believe that it is important to regulate these ingredients for safety. But in reality, they don't know what ingredients these products contain and don't have a full understanding of their health impacts.

For the purposes of this report, **personal care products** are defined as *any product that is put on the body to cleanse, enhance, or cover up one's natural features*. This includes shampoos, conditioners, soaps, lotions, perfumes and colognes, as well as makeup and hair color.

### Which products do you use daily?

According to the survey results, PSU women use a large range of products daily.

Product	% of survey respondents who use daily
Shampoo	43.0%
Facial Moisturizer	59.4%
Hair Styling Products	27.8%
Perfume, Cologne, Body Spray	33.9%
Sunscreen for Body	8.3%
Deodorant or Antiperspirant	81.1%
Mascara	38.9%
Foundation	30.6%
Lipstick or Lip Gloss	28.0%
Lip Balm	65.9%
Facial Soap or Wash	69.5%
Hand or Body Lotion	54.0%
Shaving Cream or Gel	4.6%
Toothpaste	97.8%
Acne Products	26.7%

# A daily dose of chemicals:

## 10,000 ingredients, many toxic and untested



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By some estimates, women who use personal care products every day are exposed to dozens of toxic chemicals in these products.<sup>1</sup> Women of reproductive age use twice as many personal care products in more combinations than men, resulting in daily exposures to higher levels of toxics through their use.<sup>2</sup>

Independent scientific researchers have found many unregulated and untested chemicals among the 10,000 ingredients widely used in personal care products.<sup>3-7</sup> Some chemicals known to have toxic properties, including formaldehyde,<sup>8</sup> phenoxyethanol,<sup>9</sup> and parabens,<sup>10</sup> are used as preservatives in personal care products. Some of these chemicals are known carcinogens, endocrine disruptors, and neurotoxins. Studies indicate that these chemicals end up in our bodies,

and exposures have been linked to breast cancer, reproductive impacts, and nervous system damage.<sup>11-13</sup>

While the chemicals in these products exist in small amounts, exposures occur every day and in multiple combinations through the use of a variety of personal products and other sources in our environment. These exposures add up. The scientific community is just beginning to uncover what these multiple and cumulative exposures mean for our health and how tiny doses of some chemicals, such as endocrine disruptors, may be harmful.<sup>15</sup>

**Age of most survey participants:**  
17-30

**Number of products used daily:**  
10

For decades, scientists have demonstrated that exposure to toxics early in life, either in the womb or during early stages of childhood development, cause the most harm to human health. A developing fetus is the most vulnerable. Pregnant women exposed to toxic chemicals also expose the babies they're carrying. In utero exposures to lead and mercury have been shown to harm the developing brain resulting in lower IQ's, impaired learning and memory, and behavioral changes.<sup>14</sup> Some personal care products contain these kinds of chemicals.

## Regulation of the personal care product industry is weak

The market for personal care products is strong, but regulation of the industry is weak. In the U.S., personal care product companies generate billions of dollars of revenue a year. Four personal care product companies are on the 2010 Fortune 500 list with company revenue ranging from \$7.3 to \$79.7 billion.<sup>16</sup>

As the scientific community turns more attention to everyday chemical exposures, the general public is becoming increasingly concerned about possible health effects caused by daily product use, while regulation lags behind. The U.S. Food and Drug Administration (FDA) is the chief agency responsible for regulating personal care products. But FDA regulation doesn't begin until after products reach store shelves. And even then, the agency lacks the teeth to protect consumers.

## Personal care products are one of the least-regulated products under the FDA's authority

The FDA requires personal care products to carry labels identifying ingredients by order of prominence. But fragrances and trade secret ingredients are exceptions to this requirement. If a manufacturer tells the FDA that their ingredients are "secrets" important to the product and its profitability, the manufacturer does not have to list those ingredients.<sup>17</sup>

Even personal care product companies that want to practice strict safety standards face obstacles. They may not have access to ingredient information from the companies that supply "trade secret" protected fragrances<sup>18</sup>

If the FDA determines that a cosmetic is harmful, or misbranded with false or misleading labeling, the agency can work with the U.S. Department of Justice to stop companies from selling them. However, such actions are rare because of the heavy burden of proving the case in court—

a costly endeavor, particularly when pitted against companies that have deep pockets or the chemical industry's backing.

Alternatively, the FDA issues warning letters to companies or publicizes risks associated with certain personal care products. The FDA has authority to require warning labels for products that pose unique hazards and to ban the use of certain ingredients. But the agency rarely does so, in part due to lack of complete information.

Unfortunately, as Congress continues to slash the FDA's budget, oversight for personal care products generally takes low priority. As a result, these are among the least-regulated products under the FDA's authority.

### Here's what the FDA **does NOT** do:

- The FDA **does NOT** review the safety of ingredients used in products before they go to market.
- The FDA **does NOT** require companies to conduct safety assessments on personal care products.
- The FDA **does NOT** require manufacturers to reveal all the ingredients in their products.
- The FDA **does NOT** issue recalls for products on the shelves.<sup>19</sup>

According to some watchdog groups, oversight failings by the FDA have resulted in many of the ingredients in personal care products not being evaluated for safety by any publicly accountable institution.<sup>20</sup>

## Survey results:

### What Oregon young women carry in their makeup bags

What does this all mean for today's Oregonians and their health? Oregon Environmental Council (OEC) and Metro conducted a survey of college-age women in order to better understand their daily personal care product use and their beliefs and attitudes about product safety and the role of government and manufacturer responsibility in safety.

Survey results show these women use an average of 10 products of day, most of which contain toxic chemicals that can have significant health impacts. These women want to know what ingredients are in these products and strongly believe that government regulation of personal care products is important. Many are making purchasing decisions based on the perceived qualities—environmental and health impacts—of the products they buy and use. Unfortunately, they don't have adequate information to make fully informed choices when purchasing personal care products, and as a result, are being exposed—oftentimes unknowingly—to toxic chemicals.

#### Who took the survey

OEC and Metro worked with Portland State University (PSU) to survey all females enrolled as undergraduates at PSU. 1,008 female undergraduate students participated in the survey. Most survey participants were English-speaking Caucasians between the ages of 17 and 30, with an annual income of less than \$15,000.

#### Use and attitudes

Survey results show that nearly all women believe in safety-testing products for health effects and listing all ingredients on labels, and about half believe that products on the shelves aren't matching up to their ideals.

Though nearly all participants stated that ingredients are an important consideration when deciding what to buy, not all women surveyed read ingredient labels on their products. Those who report that they always read labels strongly agree that "there are health risks associated with using personal care products."

### Beliefs about personal care products

Survey participants were asked to rate statements on a four-point scale ranging from strongly disagree to strongly agree.

Manufacturers should be responsible for testing all ingredients in personal care products for health impacts.

*Agree or strongly agree: 87.6%*

Product labels should be required to list all ingredients.

*Agree or strongly agree: 92.5%*

There are health risks associated with using personal care products.

*Agree or strongly agree: 70.3%*

*Don't know: 12.8%*

The government adequately regulates personal care products.

*Disagree or strongly disagree: 45.4%*

*Don't know: 20.1%*

I know all I need to know about the ingredients in the personal care products I use.

*Disagree or strongly disagree: 62.5%*

Ingredients in the personal care products I use are important to me.

*Important or very important: 91.1%*

## Obesogens

The prevalence of obesity and obesity-related disease has increased drastically over the past several decades. Could the obesity epidemic be more complicated than big meals and too little exercise? The most recent new research suggests that environmental chemicals dubbed “obesogens” may be a factor in obesity that begins before birth.<sup>30</sup>

Industrial pollutants found in many plastics, food packages, pesticides, and cosmetics are now thought to have metabolism-altering effects on our genes. New research suggests that the presence of these chemicals in a pregnant woman’s body may target proteins that send signals to a developing baby. The developing body responds by turning more cells into fat cells, “programming” infants to be overweight.

Phthalates are one suspected obesogen. They are common components of fragrance, but aren’t listed on product labels.

## Brazilian Blowout

In 2011, stylists at an Oregon salon reported breathing problems, coughs, swollen eyes and nose bleeds. Oregon Health & Science University (OHSU) investigated and found that the culprit was a hair-smoothing product “Brazilian Blowout” containing 4.85% - 10.6% formaldehyde.<sup>33</sup> A month later, Health Canada released their own analysis finding 12% formaldehyde in the same product.<sup>34</sup>

The FDA sent a warning letter to the Brazilian Blowout manufacturers, warning them that inhaling the chemical can harm vision, breathing and the nervous system. The chemical is also a probable human carcinogen.

Despite the FDA warning and voluntary action by some salons to stop using Brazilian Blowout, the product is still available at \$200 to \$500 per treatment.

## The products

Participants were asked to list the over-the-counter skin care, hygiene and cosmetic items they most commonly use. They identified more than 8,000 total products representing 765 unique brands.

Nine of the top ten brands chosen by survey participants are made by the world’s top-earning cosmetics manufacturers.<sup>21</sup> The one smaller company—Burt’s Bees—is the only brand on the top ten list that has made a public pledge to voluntarily comply with stricter safety standards.<sup>22</sup>

## Ingredients

Tens of thousands of products are currently on the market. Looking only at the top ten brands used by survey respondents, 544 products are ranked as “high hazard” by the Environmental Working Group’s safe cosmetics database. The other 2,156 products under those brands are ranked at varying levels of hazard based on their ingredients, some of which may include sensitizers, allergens and chemicals of concern.

Data limitations prevent a complete profile of potential toxic chemicals in these products, but we know many of the products used by survey participants contain chemicals of concern.

□ **Parabens** A group of chemicals used as preservatives, are in an estimated 75-90% of all personal care products.<sup>23</sup> They are usually the second most common ingredient in skin care products (water is the most common). They can mimic the hormone estrogen, and in animal studies, they have been linked to cancer and shown to interfere with reproduction at high doses.<sup>24,25</sup> Read labels to avoid parabens when possible. They are most commonly listed on labels as methylparaben, propylparaben, ethylparaben and butylparaben.

□ **Fragrance** The word “fragrance” is a tricky one. The actual ingredients are hidden as “trade secrets,” but we know that fragrances may contain allergens, sensitizers, neurotoxins and ingredients that interfere with hormones. Even products that are labeled unscented can contain fragrances to mask the scent of other chemicals.

### Top 10 product brands used by survey participants

(excluding dental hygiene):

1. Dove
2. Neutrogena
3. Cover Girl
4. Clinique
5. Maybelline
6. Burt’s Bees
7. MAC
8. Suave
9. Olay
10. Pantene

□ **Phthalates** A particularly concerning fragrance component. In animal and human studies, phthalates have been linked with a whole host of health concerns, including birth defects, asthma, early puberty and low sperm counts.<sup>26-28</sup> And phthalates are extremely common in personal care products. In a 2002 study, the Campaign for Safe Cosmetics found phthalates in more than 72% of personal care products tested, including fragrance-containing shampoos, deodorants and hair gels, even though the word “phthalates” wasn’t on any of their labels.<sup>29</sup> Until all fragrance ingredients are disclosed on the label, consumers cannot know what is in a particular fragrance.

□ **Formaldehyde**, a key component in most embalming fluids, is known as a probable human carcinogen.<sup>31</sup> It can also cause skin and lung irritation. Common preservatives release formaldehyde over time, contaminating personal care products including shampoo, conditioner and lotion. When reading labels, watch out for quaternium-15, DMDM hydantoin, imidazolidinyl urea, sodium hydroxymethylglycinate and diazolidinyl urea, which are all likely to contaminate products with formaldehyde.

□ **BHA (butylated hydroxyanisole)** is a preservative and stabilizer used in many personal care products including eyeliner, mascara, foundation, lipstick and lotion made by several of the top brands identified in the survey. The U.S. National Toxicology Program, a part of the National Institutes of Health, has classified BHA as “reasonably anticipated to be a human carcinogen” based on evidence of carcinogenicity in experimental animals.<sup>35</sup> BHA has been banned in the European Union for use in cosmetics and the State of California requires warning labels on BHA containing products, notifying consumers that this ingredient may cause cancer.

□ **Oxybenzone** is a potential hormone-disrupting chemical linked with endocrine disruption, cell damage and low birth weight when used by pregnant women. Oxybenzone (also known as benzophenone-3) can penetrate the skin and enter your body. Also, it is an ingredient in about half of sunscreens. Oxybenzone is also found in facial moisturizers, lip balms and lipstick.

Oxybenzone contaminates the bodies of 97% of Americans according to Centers for Disease Control research.<sup>36</sup> To avoid oxybenzone in sunscreen, choose products like “mineral” sunscreens containing zinc oxide or titanium dioxide, which block almost the entire spectrum of the sun’s damaging rays without causing irritation.



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## Lead in lipstick

Dabbing on a little bit of lipstick seems harmless enough, right? Except that some top-selling red lipsticks were recently found to contain lead.

In 2007, tests of 33 lipsticks found lead in 61% of them.<sup>37</sup> Follow-up tests by U.S. FDA detected even higher levels in 20 lipsticks tested.<sup>38</sup> Highest lead levels were in L’Oreal, Maybelline, Cover Girl and Revlon. In 2009, independent testing of children’s face paints found 10 out of 10 products tested contained lead.<sup>39</sup>

Lead is a neurotoxin that can cause learning, language and behavioral problems such as lowered IQ, reduced school performance and increased aggression.<sup>40</sup> It can also impact fertility, including increasing risk for miscarriage and reducing sperm quality. Early-life lead exposure can even increase risk for Alzheimer’s and Parkinson’s disease.

Lead can even harm the brain of a developing baby because it easily crosses from mother to child through the placenta. Experts say there is no safe level of lead exposure for children.<sup>41</sup>

# Healthy caution

## A choice unique to each individual

### How much harm to a woman and her infant do toxic chemicals in personal products actually cause?

The answer is complicated. When scientists study real populations (as opposed to lab experiments), they must consider an individual's general health, genetics and age. They also consider how much of a product is used and how often, as well as whether it can create chemical interactions or increased exposure when combined with other products.

Our survey reveals that 1,008 women use a total of more than 8,000 products, making it nearly impossible to link any one chemical to any individual's health effect. The best precaution for health may be for the industry to avoid using toxic chemicals altogether when people are likely to be exposed. Until then, individuals can think about their unique habits when choosing a healthy routine for personal care.

Woman A uses a wide variety of products each day applied in ways that expose her to the contents through inhalation, skin absorption and, potentially, through accidental ingestion. The number of products she uses increases her exposure as well as the risk of harmful chemical interactions. The most important action she can take to protect her health is to use fewer products, less often, and in smaller amounts. She could consider using shampoo every other day, having a makeup-free Sunday, or skipping the under-eye moisturizer one day a week. Small changes can have a big impact over a lifetime.

Woman B experiences less daily exposure than Woman A because she uses fewer products. But her daily regimen of lipstick, mascara and

perfume include products that commonly include chemicals of significant concern. She can best protect her health by swapping out red lipstick for lip gloss and giving up any perfume or fragrance that does not disclose its ingredients.

Woman C does not use makeup, but her daily regimen adds up to the same number of products as Woman B. She cares about ingredients and seeks products with "natural" and "botanical" claims in their product names. Unfortunately, these claims—and words like "natural" or even "organic"—are not reliable when it comes to personal products. The products may still contain harmful chemicals.

These three participants share none of the same products in common; yet they all share daily exposures to parabens and phthalates in their daily regimen. Just a little bit adds up, and studies continue to show that even tiny doses of some chemicals—such as hormone disrupting phthalates—can be harmful.

	Woman <b>A</b>	Woman <b>B</b>	Woman <b>C</b>
Total # Daily Products	20	10	10
Makeup Products	8	4	0
Other Personal Care Products	12	6	10
Products w/ Phthalates*	5	5	6
Products w/ Parabens*	8	5	3

\* some products may contain both.

# Who will protect women from toxic chemicals?

**It's your makeup bag, your market and your laws. You can help.**

1. **Use fewer products, less often, in smaller amounts.** When you can't avoid ingredients that cause harm, you can still reduce your exposure. Are there products you can use weekly instead of daily? Can you use a smaller amount of lotion or shampoo?
2. **Avoid fragrance.** Read the ingredient label and look for products that don't list the word "fragrance." Even "unscented" products may contain fragrance made from a mix of chemicals. These chemicals may include phthalates and synthetic musks that can damage organs, cause asthma and disrupt hormones.
3. **Use mild soaps.** If you use soap that's easy on your skin, you can avoid using moisturizing products. Look for soaps with a small number of ingredients. Avoid soap with artificial fragrance or triclosan.
4. **Minimize your use of dark hair dyes.** Dark dyes may contain coal tar, an ingredient linked to cancer in some studies.
5. **Reduce exposure to nail polish.** Polish routinely contains ingredients linked to birth defects. Paint nails in a well-ventilated room or outside, paint your toenails and skip the fingernails, or avoid using nail polish altogether.
6. **Research your products.** Reading labels can be frustrating and confusing. Do your research before you go to the store! Labels like hypoallergenic, all-natural and organic don't give you enough information to ensure that they are free of toxic chemicals. If there are ingredients you don't trust or recognize, look for more information. This web site can help: [www.ewg.org/skindeep](http://www.ewg.org/skindeep)
7. **Look for customer service hotlines and emails.** Packages and web sites often list customer service contacts. Let the companies who make your favorite products know that you care about ingredients. Your message can be simple: "I want products that I can trust. Does this U.S. product meet European standards for safe ingredients?"
8. **Talk to your local store.** Consumers can be powerful! If you can't find safe products at the store where you most often shop, tell them what products you would like them to carry.
9. **Tell your elected officials what you want.** The FDA is in charge of regulating cosmetics, and the EPA is in charge of making sure we know the health risks of chemicals. But neither agency can do the job well because of lax laws. Tell your elected officials you want cosmetics in the U.S. to be at least as safe as those in Europe, and that you want stronger laws to protect people from dangerous chemicals.
10. **Act now! Sign the safe makeup petition at [www.oconline.org/safemakeup](http://www.oconline.org/safemakeup).** Help Oregon Environmental Council show decision-makers that Oregonians care about this issue and demand to be heard.



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