

Potentially Toxic Chemicals in Personal Care Products

Everyday personal care products, such as cosmetics and shampoo, can contain chemicals associated with asthma, allergies, hormone disruption, neurodevelopmental problems, infertility, and even cancer. Americans use an average of 10 personal care products each day. The average person in the United States is exposed to chemicals from cosmetics, shampoo, and other personal care products before leaving the house each morning.¹ According to the Environmental Working Group, industrial chemicals are basic ingredients in personal care products. The 12,500 unique chemical ingredients in these products equate to about one of every seven of the 82,000 chemicals registered for use in the U.S.² Personal care products contain carcinogens, pesticides, reproductive toxins, endocrine disruptors, plasticizers, degreasers, and surfactants.³ Exposure to personal care products typically begins in infancy, with products such as baby shampoo and diaper cream, and continues throughout the lifespan. Prenatal exposure to certain chemicals is also possible. Deodorant, toothpaste, cosmetics, lotions, and hair products are among the most commonly used products.



A growing body of scientific evidence shows that even the smallest dose of some chemicals can be harmful.

Many studies have been done to test the effects of these chemicals on laboratory animals, such as mice and rats. While it is typically not possible to conduct studies exposing potential toxins to humans, there has been research describing harmful effects on humans, some of which is described in this fact sheet. Other challenges to conducting research on the impact of certain chemicals on humans include the fact that humans use multiple personal care products, each of which can contain numerous chemicals, so teasing out the effects of just one chemical can be difficult. Also, humans are exposed to these chemicals over the course of their entire lives, which extends past reasonable periods of study.

Several manufacturers of personal care products have voluntarily removed certain chemicals from their products. For example, Avon, Revlon, L'Oreal, and Estee Lauder prohibit the use of phthalates in their products. Revlon has also removed BHA. Johnson & Johnson has gone even further, in a series of reforms that have resulted in the removal of 1,4-dioxane, formaldehyde, many parabens, triclosan, and certain fragrance chemicals.⁴



In his 2018 State of the State address, Governor Cuomo proposed requiring the manufacturers of personal care products sold in New York State to make product ingredient information publicly available in a clear and easy-to-use web format, listing all chemical ingredients which have been identified by other state, federal, or international jurisdictions as posing a hazard to human health. The Governor's plan also includes the creation of a centralized database of manufacturer disclosure websites, which will be maintained by the State in partnership with the Interstate Chemicals Clearinghouse. Currently, no such requirement for personal care products exists in New York State.

New York State is not alone in seeking to promote greater transparency and safety with personal care products. European Union countries prohibit (with few exceptions) the use of substances classified as carcinogenic, mutagenic, or toxic for reproduction in cosmetic products.⁵ The Canadian government regularly updates a Cosmetic Ingredient Hotlist that includes hundreds of chemicals and contaminants prohibited and restricted from use in cosmetics, such as formaldehyde, triclosan, selenium, nitrosamines, and 1,4-dioxane.⁶ California, which has the world's fifth largest economy, requires cosmetics manufacturers that sell products in the state to list ingredients on a state-run website.⁷ Additionally, the California Safer Consumer Products regulations, approved in 2013, require companies to replace certain chemical ingredients in consumer products with safer alternatives.⁸ **The following table exhibits some chemical ingredients that have been identified as toxins.**

FACT SHEET

Potentially Toxic Chemicals in Personal Care Products

TOXIN	PERSONAL CARE PRODUCTS CONTAINING TOXIN	SCIENTIFIC LINKS
Butylated Hydroxyanisole (BHA)	Makeup	BHA is classified by the National Toxicology program as being "reasonably assumed to be a human carcinogen" ⁹ and has been shown to cause stomach cancer in rats, mice, and hamsters ¹⁰ as well as liver cancer in fish. ¹¹
Formaldehyde	Salon hair-straightening products ¹² and nail hardeners	Formaldehyde has been classified as "known to be a human carcinogen" by the National Toxicology program. ⁹ Occupational exposure, typically respiratory, has been scientifically linked to nasopharyngeal cancer, sinonasal cancer, and lymphohematopoietic cancer, specifically myeloid leukemia. ⁴
1,4-Dioxane	Foaming products (shampoo, body wash), lotions	1,4-Dioxane is created as a byproduct during the manufacturing process, and has been identified as a "probable human carcinogen" by the EPA. ¹³ In lab animals, high levels of 1,4-dioxane exposure has led to various complications, including liver and kidney damage. ¹⁴
Parabens	Makeup, moisturizers, hair care products, and shaving products	Parabens are possible endocrine disruptors, ¹⁵ with potential immune or allergenic effects. ¹⁶ Paraben exposure has been shown to increase migratory and invasive activity of human breast cancer cells in vitro. ¹⁷ High levels of urinary parabens have also been statistically linked with sperm DNA damage and lower levels of reproductive hormones in men. ¹⁸
Phthalates	Perfumes, hair sprays, soap, shampoo, nail polish, and skin moisturizers	High urinary concentrations of certain phthalates in pregnant women have been linked to problems with reproductive development in male fetuses ¹⁹ and increased prevalence of ADHD in children. ²⁰ Exposure to some phthalates has also been linked to sperm DNA damage in adult men. ²¹
Toluene	Nail polish, salon hair treatments	Toluene exposure can cause cognitive and behavioral changes in mice. ²² Humans exposed to high levels can show central nervous system depression, neurobehavioral impairment, and upper respiratory tract irritation. With massive exposure, accumulation of fluid in the lungs and respiratory arrest may ensue. ²³
Triclosan	Toothpaste	High levels of urinary triclosan have been linked to higher prevalence of hay fever and allergies in children, which suggests a negative effect on the human immune system. ²⁴ Triclosan has also been shown to suppress thyroid hormones in lab rats. ²⁵
Sodium Laurethsulfate (SLS)	Toothpaste, soap, shampoos, bath products, and moisturizers	Human exposure can lengthen duration and increase pain in patients with certain kinds of ulcers. ²⁶ Contamination with 1,4 dioxane may occur. ²⁷ It is considered an eye, skin, and lung irritant. ²⁸