



What is the Connection between Cosmetics and Breast Cancer?

A growing body of scientific evidence suggests that exposures to toxic chemicals in the environment are contributing to high breast cancer rates.

Many of the cosmetics and personal care products we use every day – including shampoos, deodorant, face cream and make-up – contain chemicals linked to breast cancer.

- Much of what we put on our skin is absorbed and ends up inside our bodies—a huge concern for all of us and especially women of childbearing age.
- Cosmetics are just one of many sources of daily toxic exposures. For example, we can be exposed to unsafe chemicals from many different personal care products, as well as from vinyl shower curtains, vinyl car seats, plastic bottles, pesticides, toys, medical devices and pharmaceuticals.

Not all toxic chemicals linked to breast cancer act the same.

Some chemicals are breast carcinogens. Carcinogenic chemicals are found widely in our environment and cause direct damage to breast cell DNA or change the cell's ability to respond to internal or external challenges.

Other chemicals disrupt hormones in the body. These chemicals, called endocrine disruptors, disturb or mimic normal biological processes like the actions of hormones including androgens, estrogens and thyroid hormone. Chemicals that mimic estrogen are of particular concern because exposure over time to natural estrogen—or synthetic chemicals that act like estrogen—increases the risk of breast cancer.

See table on back for a list of chemicals in cosmetics linked to breast cancer, whether they are carcinogens or endocrine disruptors, and common sources of exposure.

What can we do about toxic chemicals in cosmetics?

Visit Skin Deep, an online database of over 25,000 cosmetics and personal care products cross referenced against 50 toxicity databases. Look up the safety scores of products you use and find safer alternatives. www.cosmeticdatabase.com

More than 600 companies have pledged to replace toxic ingredients in their products with safer alternatives. Visit the Campaign for Safe Cosmetics and join us in advocating for safer cosmetics. www.safecosmetics.org

Download “Unmasked: 10 Ugly Truths Behind the Myth of Cosmetic Safety,” a brochure from the Campaign for Safe Cosmetics. www.breastcancerfund.org/unmasked (Available in English and Spanish)

Join the Breast Cancer Fund in advocating for laws that protect people from toxic chemicals and encourage the development of safer alternatives. Visit the BCF's Legislative Toolkit to learn how to get involved in your state. www.breastcancerfund.org/toolkit

Chemical	Carcinogenic		Disrupt Hormones	Source of exposure in cosmetics
	Animal Mammary Gland Carcinogen ⁱ	Human Carcinogenic Risk Classification ⁱⁱ	Disrupts Endocrine System/ Estrogenic ⁱⁱⁱ	
Benzene	√	IARC Known; NTP Known		Nail polish and nail polish remover
Bisphenol A			√	Cosmetic containers/packaging
1,3 Butadiene	√	IARC Probable; NTP Known		Rubber sponges for applying cosmetics
1,4 Dioxane	√	IARC Possible; NTP Reasonably Anticipated		Petroleum-derived contaminant formed in manufacture of shampoos, body wash, children's bath products and other cosmetics
Ethylene Oxide	√	IARC Known; NTP Known		Fragrance
Musks, synthetic (Musks: xylene, ketone, ambrette, moskene, tibetene)			√	Fragrance
N-Nitrosamines like n-nitrosodi-n-butylamine	√	IARC Possible; NTP Reasonably Anticipated		Chemical reactions occur over time in the product to produce nitrosamines, usually found in creams, lotions, shampoos and conditioners.
Nonylphenol			√	Lotions and a wide range of other products
Parabens (Butyl-, ethyl-, methyl-, propyl-)			√	Antifungal agent, preservative, antimicrobial in creams, lotions, ointments and other cosmetics
Petrolatum (polycyclic aromatic hydrocarbons, PAHs , are common contaminants)	√	IARC Possible; NTP Reasonably Anticipated	√	PAHs are petrolatum contaminants; found in petroleum jelly, lipsticks, baby lotions and oils; found in 1 of every 14 personal care products
Phthalates di-n-butyl- (DBP), di(2-ethylhexyl)- (DEHP)			√	Nail polish, fragrance
Placental extract (Progesterone main constituent)	√	NTP Reasonably Anticipated	√	Hair conditioners, shampoos and other grooming aids, particularly marketed to women of color.
1,2 propylene oxide	√	IARC Possible; NTP Reasonably Anticipated		Fragrance
Titanium dioxide (Dioxin by-product of manufacturing and contaminant)		IARC Known; NTP Known	√	Titanium dioxide used in sunscreens and mineral make-up; use of titanium dioxide nanoparticles a possible threat to human health
Triclosan (Dioxin by-product of manufacturing and contaminant)		IARC Known; NTP Known	√	Triclosan is an antibacterial used in soaps, toothpaste, mouthwash and other personal care products
Urethane (ethyl carbamate)	√	IARC Possible; NTP Reasonably Anticipated		Hair care products (mousse, gels, sprays), sunscreens, nail polish, mascara, foundation

Note: Chemicals of concern are in bold. 1,4-dioxane, PAHs, dioxin, and n-nitrosamines will not appear on product labels because they are contaminants and formed in manufacturing or through chemical reactions in the product.

ⁱ Silent Spring Institute's Science Review published in *Cancer* in 2007 includes information on 216 animal mammary gland carcinogens. www.sciencereview.silentspring.org

ⁱⁱ International Agency for Research on Cancer (IARC) carcinogenic risk classification is based on evaluation of potential tumor development at all sites, not only breast/mammary tissue. Categories include: Known, Probable, Possible and others. The National Toxicology Program (NTP), within the National Institute of Environmental Health Sciences of the National Institutes of Health, provides carcinogenicity ratings based on scientific evidence in both animals and humans. Categories include: Known, Reasonably Anticipated, and others. (Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program.) Not all chemicals have been rated by IARC or NTP.

ⁱⁱⁱ To date, neither the NTP nor IARC have classified most endocrine disruptors as carcinogens in humans. List of endocrine disruptors from: Brody JG, Rudel RA (2003). Environmental pollutants and breast cancer. *Environmental Health Perspectives* 111: 1007-1019.