

Hazardous Chemicals in Cosmetics

Over 10,000 ingredients are used in personal care products. Some of these chemicals are linked to cancer, birth defects, developmental and reproductive harm, and other health problems that are on the rise. While the US FDA bans 9 ingredients from cosmetics – the EU has banned over 1,000 due to health concerns. The table below shows a sample of ingredients contained in cosmetics sold in Massachusetts and associated health impacts.

Chemical	Products	Health Impacts
Coal Tar Colors	Make-up and hair-dye	Some FD&C colors are carcinogenic or contain impurities that have been shown to cause cancer when applied to the skin. Allergens and irritants.
Diethanolamine (DEA)	Widely used in shampoo	A suspected carcinogen, its compounds and derivatives include triethanolamine (TEA), which can be contaminated with nitrosamines shown to cause cancer in laboratory animals. [Suggestive animal evidence]
Formaldehyde and its releasers¹	Eye shadow, mascara, nail polish, shampoo, blush, etc.	Carcinogen, reproductive toxin, shown to cause or exacerbate asthma and other respiratory ailments. [Strong animal and human evidence]
Glycol Ethers	Nail polish, deodorant, perfume	Hazardous to the reproductive system. Other effects include anemia and irritation of the skin, eyes, nose and throat. EGPE, EGME, EGEE, DEGBE, PGME, DPGME and others with "methyl" in their names. [Strong animal and human evidence]
Lead	Hair dyes (eg. Grecian formula) and in eye makeup (as a preservative)	Lead damages the nervous system, leading to decreased learning ability and behavioral deficits. Reproductive toxin. Carcinogen. [Strong animal, human and children evidence]
Mercury	Skin-lightening cream and in eye makeup (as a preservative).	Mercury is toxic to development, as well as to the nervous system and is suspected to have harmful effects on the respiratory system, the kidneys and gastrointestinal and reproductive systems. [Strong animal, human and children evidence]
Parabens	Deodorant, shampoo, cream, baby product, shaving cream, make-up, etc.	Methyl-, ethyl-, propyl-, butyl-, isobutyl- and other parabens, have shown hormonal activity. The most common preservatives used in cosmetics. Recently found in tissue samples from human breast tumors. Propylparaben affects sperm production in juvenile rats. [Suggestive animal and human evidence]
Phenylenediamine (PPD)	Hairdyes (oxidation dyes, amino dyes para dyes, or peroxide dyes)	PPD is mutagenic and reasonably anticipated to be a human carcinogen. It has been banned in Europe. It is also linked with skin irritations, and respiratory disorders. [Compelling animal evidence]
Phthalates Most used in cosmetics: DBP, DMP, and DEP.	Fragrance, perfume, deodorant, nail polishes, various hair products, cream and lotion, etc.	Liver and kidney lesions; reproductive abnormalities, including testicular atrophy, altered development of reproductive tissues and subtle effects on sperm production (maybe through endocrine disruption); cell line transformations; and cancers, including those of the liver, kidney, and mononuclear cell leukemia. These effects are generally <i>quantitatively</i> though not <i>qualitatively</i> different between phthalates. The developing male reproductive system appears to be the sensitive organs. [Strong animal evidence; suggestive human evidence; some children evidence through exposure via medical devices]

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¹ Formaldehyde releasers include: Paraformaldehyde, benzylhemiformal, 2-bromo-2-nitropropane-1,3-diol, 5-bromo-5-nitro-1,3-dioxane, diazolidinyl urea, imidazolidinyl urea, Quaternium-15, DMDM Hydantoin, sodium hydroxymethyl glycinate, and Methenamine



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HAZARDS OF COSMETIC AND PERSONAL CARE PRODUCTS

Dangerous Beauty: Toxic Ingredients in Personal Care Products

The US Food Drug & Cosmetic Act¹ defines cosmetics as “(1) articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, and (2) articles intended for use as a component of any such articles; except that such term shall not include soap.”

This definition includes a myriad of products used by men and women: skin-care creams, lotions, powders and sprays, perfumes, lipsticks, fingernail polishes, eye and facial makeup, permanent waves, hair colors, deodorants, baby products, bath oils, bubble baths, and mouthwashes. According to industry estimates, on any given day a consumer may use as many as 25 different cosmetic products containing more than 200 different chemical compounds.

The toxicity of product ingredients is evaluated almost exclusively by a self-policing industry safety committee, the Cosmetic Ingredient Review (CIR)² panel. Because testing is voluntary and controlled by the manufacturers, many ingredients in cosmetics products are not safety tested at all. In fact, 89% of 10,500 ingredients used in personal care products have not been evaluated for safety by the CIR or anyone else (FDA 2000, CIR 2003). In the *Skin Deep* investigation³ by the Environmental Working Group, 99.6 percent of the 7,500 products examined contain one or more ingredients never assessed for potential health impacts by the CIR. The absence of government oversight⁴ for this industry leads to companies routinely marketing products with ingredients that are poorly studied, not studied at all, or worse, known to pose potentially serious health risks: cancer, birth defects, reproductive and developmental problems, allergies and respiratory ailments, and other health problems on the rise in the U.S.

Many of these chemicals have been detected in our bodies and children, even human breast milk. While exposure from one cosmetic product might seem small, daily use of a host of cosmetic products applied directly on the skin can lead to significant exposure and potential harm. In addition, we are repeatedly exposed to industrial chemicals from many different sources every day throughout our lives. The effects of such varied interacting chemical exposure increasingly raises concerns about unexpected health impacts through cumulative and potentially synergistic effects.

Toxic Ingredients

According to the FDA's Office of Cosmetics and Colors, the government agency that regulates cosmetics, "...a cosmetic manufacturer may use almost any raw material as a cosmetic ingredient and market the product without an approval from FDA" (FDA 1999). While some cosmetic ingredients are benign, others can cause or are suspected to cause harmful health effects such as cancer, mutations, allergic reactions, respiratory problems as well developmental and reproductive problems.

The CDC found that everyone is exposed to phthalates⁵, a family of chemicals commonly used in cosmetic products. Evidence from animal studies indicates that phthalates may affect reproduction and development. The CDC also tested for exposure to heavy metals with well known health effects such as lead and mercury that can cross the placenta and can damage the fetal brain, as well as affect the nervous system of growing children and even adults. Both these heavy metals are allowed for use in cosmetics in the U.S. Recently, the European Food Safety Authority Scientific Panel reviewed propyl paraben and was unable to determine a safe level for this chemical that has been shown to have effects on sperm production at a relatively low dose in male juvenile rats⁶.

Equally worrisome is the use of ingredients for which little to no information is available. The CIR has failed to review 17 of the top 50 ingredients used in cosmetics (including silica, a carcinogen, found in over 10% of the products reviewed by EWG). For one out of ten ingredients that the CIR reviewed, it was unable to determine if the ingredient was safe for use in cosmetics and rendered a finding of “insufficient data.”⁷ Nearly one of every 20 products (4.7 %) contains one or more ingredients that the CIR found had insufficient testing data.⁸ See *AHT's Hazardous Chemicals in Cosmetics Chart* for more details on the variety of ingredients and their potential health impacts.

The EU Cosmetics Directive

In February 2003, the European Union adopted an amendment to the Cosmetics Directive 76/768/EEC that prohibits the use of known or suspected carcinogens, mutagens and reproductive toxins (a.k.a. CMRs) from cosmetics⁹. By September 2004, cosmetics sold in European Union countries must be free of these CMR chemicals, including two phthalates, DEHP and DBP. This is in addition to 451 substances already covered by the Directive – bringing the list of substances banned in cosmetics to over 1000 in the Europe. Examples of banned substances include formaldehyde and its releasers (common in shampoos), lead and its compounds (an ingredient in Grecian formula), acrylamide polymers (found in foundation and skin lotions), and some phthalates (commonly found in a large variety of products).

Lack of US Regulations and Absence of Enforcement

Major loopholes in federal law allow the cosmetics industry to put unlimited amounts of chemicals into personal care products with no required testing, no monitoring of health effects, and inadequate labeling requirements. There is no regulating body that:

- reviews and approves cosmetics ingredients prior to their use in production;
- requires companies to conduct safety testing of cosmetics products before marketing them (a safety warning may be required);
- requires manufacturers to register their cosmetic establishments, file data on ingredients, or report cosmetic-related injuries;
- approves cosmetic products or ingredients (except for color additives¹⁰).

The US FDA limits only nine (9) chemicals¹¹:

Bithionol, Halogenated salicylanilides, Chloroform, Methylene chloride, Hexachlorophene (HCP) (limited to 0.1%), Mercury compounds (can only be used as a preservative in eye area cosmetics provided no other effective and safe preservative is available for use), Chlorofluorocarbon propellants (prohibited in cosmetic aerosol products to protect the ozone layer), Vinyl chloride and Zirconium-containing complexes (banned only in aerosol cosmetic products).

Products of Concern

Products containing:

- Carcinogens such as formaldehyde, lead, DEA or coal tar
- Mutagens such as phenylenediamine (PPD) or butane
- Reproductive toxins such as phthalates, lead, toluene, glycol ethers, mercury, ethoxyethanol acetate, and propylparaben

Many of the chemicals from these categories have been identified by various governmental agencies such as the European Union (list of banned substances in cosmetics), the California EPA list of carcinogens and reproductive toxins¹² and the EPA TRI list¹³. See *AHT's Hazardous Chemicals in Cosmetics Chart* for more details and examples.

Alternatives

Carcinogens, mutagens or reproductive toxins do not belong in cosmetics and personal care products and are not required as demonstrated by the many European products available on the market. *The Campaign for Safe Cosmetics* has contacted many cosmetics companies that sell their products in the US urging them to sign a pledge to meet the requirements of the EU Directive, and to implement substitution plans that replace hazardous materials with safer alternatives within three years.

The following companies have signed the “Compact for Global Production of Safer Health and Beauty Products”¹⁴ as of November 16, 2004:

A Wild Texas Soap Bar, Akamuti, Arganat Inc., Aroma Naturals, Avalon Natural Products, Bath Petals, Canary Cosmetics, Carrot Tree Soaps and Essentials, Clearly Natural, LLC, Dead Sea Warehouse, Dr. Bronner's Magic Soaps, Dropwise Essentials, Earth Mama & Angel Baby, Eco-Beauty Organics, Ecco Bella Botanicals, Eufora International, Exuberance, Farmaesthetics, Garden of Eve, Hedgerow Herbals, Herbaria, Highland Heart Ltd., Holistic Skincare and Spa Therapy Co., Honeybee Gardens, Inc., Inky Girl Beauty, InerQi, Integral Sense Brands, Juice Beauty, The Master's Miracle, Max Green Alchemy Ltd., Monave Mineral Cosmetics, Marie-Veronique Skin Therapy, Organic Truth: MiEssence, Osea Skin Care, Out of Eden, Paul Penders Company, PeaceKeeper, Plant Life, Inc., Prestige Cosmetics Corporation, Salty Girls, Sevi Cosmetics, Sophyto, Sunflower Essentials Bath & Body Care, TerrEssentials, Valhalla Essences, Wild Thyme Botanicals

Companies that have said they will reformulate globally to eliminate the use of carcinogens, mutagens and reproductive toxins as required by the EU directive:

Alberto Culver, Barefoot Botanicals, Coty Inc., Custom Esthetics Ltd., Gap, Inc., The Gillette Company, Sara Lee, and Schering-Plough Health Care Products.

¹ <http://www.fda.gov/opacom/laws/fdact/fdctoc.htm>

² Cosmetics Ingredient Review web site <http://www.cir-safety.org/>

³ Environmental Working Group(2004) *Skin Deep – a safety assessment of ingredients in personal care products* <http://www.ewg.org/reports/skindeep/>

⁴ FDA Authority over Cosmetics <http://www.cfsan.fda.gov/~dms/cos-206.html>

⁵ Center for Disease Control (CDC)(2003) Second National Report on Human Exposure to Environmental Chemicals <http://www.cdc.gov/exposurereport/2nd/>

⁶ European Food Safety Authority, September 29 2004, http://www.efsa.eu.int/press_room/press_release/631_en.html

⁷ Cosmetics Ingredient Review (CIR) (2003). CIR Compendium.

⁸ See Reference 3.

⁹ The EU Directive

<http://www.safecosmetics.org/docUploads/OJ%20implementation%20CMR%20ban%202004%5F93%20EN%20.pdf>

¹⁰ U.S. Color Laws, Regulations, & Related Resources <http://www.cfsan.fda.gov/~dms/col-toc.html#laws>

¹¹ FDA web site <http://www.cfsan.fda.gov/~dms/cos-210.html>

¹² List available at http://www.oehha.org/prop65/prop65_list/files/070904list.html

¹³ http://www.epa.gov/tri/chemical/hazard_categories.pdf

¹⁴ Campaign for Safe Cosmetics http://www.safecosmetics.org/companies/compact_with_america.cfm