

Cosmetics and personal hygiene products

What harmful chemicals might my cosmetics and personal hygiene products contain?

The European Union undoubtedly has some of the best chemicals regulations in the world. Cosmetics and personal hygiene products (from herein referred to as “cosmetics”) sold in the UK must comply with these regulations. Despite this, they can still contain chemicals which are known or suspected to cause adverse health effects, with potential links to breast cancer (1).

Cosmetics contain a range of chemicals for specific functions. They include UV filters; colourants; hardeners; preservatives (to prevent the growth of microorganisms); fragrances (parfumes); antioxidants to help prevent skin damage and to improve product stability; emollients/moisturisers to soften skin by reducing evaporation; surfactants used as foaming agents; and emulsifiers (which help water-soluble and oil-soluble ingredients mix). Ingredients can be synthetic or naturally occurring chemicals.

Why should we be concerned?

One reason why we should be concerned is the sheer number and combination of chemicals we are exposing ourselves to on a daily basis. One US survey (2) found on average, American women use 12 personal care products and/or cosmetics a day. The total products they used contained 168 different chemical ingredients. Cosmetic products are used on the body from birth (e.g. nappy rash creams) onwards, by men and women, teenagers and young children. A survey recently conducted in France (3) found an even greater use of cosmetics products than in the U.S., with on average 18 cosmetics being used daily by adult pregnant women, 16 by adult non-pregnant women, 8 by adult men, 7 by girls, 5 by boys and 6 for babies under 3 years.

Of the numerous products used on a daily basis a large number are likely to contain chemicals that are known or suspected of being endocrine disrupting chemicals (EDCs). These chemicals are absorbed through the skin (4), through inhalation, and indirectly via their environment (e.g. compounds (or their metabolites) excreted in urine, or those directly disposed of into the sewage system or to landfill, may enter the aquatic environment via discharged wastewater or landfill run-off (5). Consequently, exposures to cosmetics ingredients can occur through ingestion of contaminated food and water as well as from inhalation and skin absorption).

EDCs that are commonly used in cosmetics have been identified in human body fluids including urine (e.g. phthalates (6), triclosan and parabens (7)), breast milk (e.g. UV filters, parabens and phthalates (8)) and blood (e.g. phthalates (9)). Ingredients that bio-accumulate (build up in fatty tissues) have also been identified in human tissues, including breast tissue (e.g. aluminium (10) and parabens (11)).

A number of cosmetics ingredients have been banned over the years because of concerns about their toxicity. For example, some fragrance ingredients, including several synthetic nitro musks (used as alternatives to animal-derived musks), have been banned by the EU (12,13), due to their toxicity, their tendency to bioaccumulate and their environmental impact. More recently, several phthalates used as fragrances, including bis-(2-ethylhexyl) phthalate, dibutyl phthalate and benzyl butyl phthalate, were banned for use in cosmetics and children’s toys (14), following their

classification as reproductive toxicants (15). However, a number of other chemical ingredients with links to breast cancer and other adverse health effects continue to be used in cosmetics and personal care products. Examples include short chain parabens (16) (used as preservatives) and phthalates (17) (used as fragrances).

How are they linked to breast cancer?

Some ingredients used in cosmetics may increase breast cancer risk. Of particular concern are those EDCs that mimic oestrogens. Oestrogens stimulate breast cell growth and proliferation. They can also contribute to the proliferation of damaged cells and along with their metabolites (metabolic break-down products), increase the likelihood of mutations which may lead to breast cancer (18).

Certain chemicals found in cosmetics interfere with oestrogen levels in the body and may lead to changes in breast tissue, (similar to those caused by oestrogens), which have been associated with an increased risk of breast cancer (19). Some chemical combinations may be particularly harmful (20). Products as a whole, (ie the entire combination of chemicals, not just individual ingredients), have also been shown to act as oestrogen mimics (21).

Studies also show that hair and beauty salon workers who are exposed to numerous cosmetics on a daily basis may also be more likely to suffer from a range of health problems including an increased incidence of dermatitis, asthma, Alzheimer's disease, lupus, cancers, including breast cancer, miscarriage and birth defects in their children.(22)

In the UK, hairdressers were found to experience higher levels of musculoskeletal problems and coughs (23), and mothers' occupational exposure to hairspray increased the incidence of hypospadias (penis abnormalities) in sons, by 2.4 fold (24). A review (25) found hair and nail salon workers in Europe (including the UK) are at an increased risk of certain cancers, including a slightly elevated risk of breast cancer, although not all studies show a link between salon work and breast cancer risk.

Breast Cancer UK position

- The regulation of chemicals to be strengthened and improved, based on the precautionary principle, to protect public health;
- The exposure to hazardous chemicals, including EDCs, to be recognised as preventable risk factors for breast cancer;
- Revision of the EU cosmetics regulation to restrict EDCs from use in products, similar to carcinogens and reproductive toxicants;
- An extension of EU Article 60 (26) of the REACH Regulation, to ensure EDCs are, by default, classed as Substances of Very High Concern (SVHC), for which no safe thresholds can be determined;
- Use of UV filters be restricted to sunscreens and not permitted for use as a preservative in everyday cosmetics products, such as skin lotion; and
- Cosmetics and personal care products no longer be exempt from the EU Regulation on Classification, Labelling and Packaging and so will display hazard warnings.

For more information download our [Background briefing on Cosmetics and Personal Hygiene Products](#).

Reduce your Risk : [Find out more about what chemicals to look out for and what to avoid](#)

For a list of references cited above please see [here](#).

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