

Should we worry about parabens?

- Parabens are chemicals used in cosmetics.
- Some can be used as food additives.
- Parabens have been linked to breast cancer, but it has not been proven that they are a cause.
- They are extremely weak mimics of the oestrogen hormone.
- Both the EU and the USA Food & Drug Administration (FDA) assessed data from various studies and found that the use of parabens in cosmetics does not pose a threat to human health.

What are parabens?

Parabens are a group of chemicals that are commonly used in cosmetics as preservatives. They work well as preservatives because of their antimicrobial properties. In the EU, some parabens are also permitted for use as food additives at very low levels. All parabens that are used commercially are synthetic (ie man-made). However, some of these parabens can also be found in nature, such as in blueberries, prunes and cinnamon.

Parabens are extremely effective preservatives and cost little to produce. They have been used in cosmetics since the 1920s. Several decades ago, they replaced a different preservative, which released formaldehyde. These older preservatives had a much higher rate of negative health effects such as allergic skin reactions.

Common uses

Parabens help to prevent cosmetics and other toiletries from deteriorating during storage and use. Many products contain two or more parabens because they work better as mixtures. A mixture of different kinds of preservatives is usually used so that the product can be protected against a wide range of microorganisms.

Parabens are used widely in cosmetics and personal products, including deodorants, moisturisers, shampoos, make-up, shaving gels and toothpastes. Preservatives in these products have to be listed as ingredients on the product label. This means that you can easily find out which of products you use contain which parabens.



Did you know?

Some common parabens are methylparaben, ethylparaben, propylparaben and butylparaben. Some less common parabens include benzylparaben and isobutylparaben.

Should we worry about parabens?

There have been some concerns about the use of parabens, particularly in cosmetics. However, there is no conclusive evidence to show that parabens cause breast cancer.

Cosmetics such as moisturisers may cause allergic reactions in some particularly sensitive people, but parabens not one of the most common causes.

Do parabens cause breast cancer?

There have been many reports in the media about a possible link between parabens and breast cancer. Some scientific studies have found very low concentrations of parabens in samples of breast tumours from breast cancer patients. The parabens may have migrated from deodorants applied to the underarms. The fact that parabens have been found in breast tumours does not automatically mean that parabens cause cancer. There are many other factors involved in the development of cancer.

Cancer Research UK has said there is no evidence that underarm deodorants are responsible for any increased risk of breast cancer. The USA National Cancer Institute believes that there is no conclusive evidence that parabens in such products are linked to breast cancer.

In 2010, an opinion from the Scientific Committee on Consumer Safety concluded that there was not enough data to establish a link between the use of underarm deodorants and breast cancer. The USA Food & Drug Administration (FDA) concluded that the research does not show that parabens cause cancer or that they are harmful in any way.

Are parabens endocrine disruptors?

Endocrine disruptors are chemicals that interfere with the body's hormone system. Parabens have been shown to be very weak mimics of oestrogen, a female hormone involved in the development of breast cancer. This has led to calls for their health risks to be investigated further.

Skin reactions

Products such as face creams that are applied to the skin can cause problems for some individuals. Some people may suffer allergic reactions.

Fragrance and preservative ingredients are the most common allergens found in cosmetics. Although parabens are the most widely used preservative in cosmetic products, they are rarely the cause of allergic skin reactions. For example, according to a study which reviewed data collected by the North American Contact Dermatitis Group, parabens were found to cause an allergic skin response in only 1% of people who suffer from skin allergies caused by cosmetics. In contrast, formaldehyde (a previously commonly used preservative) caused a reaction in 9% of patients.

Did you know?

In the EU, some parabens are permitted for use as food additives (e.g. E216). They can be used as preservatives in small quantities in some types of processed foods.



Did you know?

The most powerful of the parabens that can mimic oestrogen is butylparaben. It is between 10,000 and 100,000 times less active than naturally occurring oestrogen.

However, cosmetic ingredients are more likely to cause a reaction when applied to damaged or broken skin. It is therefore important to apply cosmetics to normal skin only.

If you suffer from irritation or allergic skin reactions after the using cosmetics, patch-testing in a dermatology clinic should be able to determine which substances in particular are causing the problem.

Alternatives

There are now many products available that are marketed as 'free from parabens'. The products that do contain parabens must list them on the label. If you wish, it should be relatively easy avoid parabens by checking the label.

One alternative to parabens is grapefruit seed extract (GSE), a concentrated extract of the seeds and pulp of grapefruit. Some companies that market GSE claim that it has antimicrobial and antiviral properties. However, it is not clear whether this and various other naturally-derived preservatives have been properly tested for their effectiveness. This has raised concerns about their safety and the shelf-life of products containing these substances.

Further Reading

- European Commission's Scientific Committee Factsheet on Parabens: http://ec.europa.eu/health/scientific_committees/docs/citizens_parabens_en.pdf
- European Scientific Committee on Consumer Safety (SCCS) Opinion from March 2011: http://ec.europa.eu/health/scientific_committees/consumer_safety/docs/sccs_o_041.pdf
- FDA overview of parabens: <http://www.fda.gov/cosmetics/productandingredientsafety/selectedcosmeticingredients/ucm128042.htm>
- Cancer Research UK: Deodorants and Cancer: <http://www.cancerresearchuk.org/cancer-info/healthyliving/cancercontroversies/deodorants/deodorants-and-cancer>
- Allergic Contact Dermatitis to Preservatives: http://www.medscape.com/viewarticle/531026_3
- Allergic Patch Test Reactions Associated with Cosmetics: <http://www.luzimarteixeira.com.br/wp-content/uploads/2009/11/reacao-alergica-patch-test-cosmeticos.pdf>



Did you know?

Products marketed as organic or natural are not necessarily paraben free.

This Note was produced by a working party of the Environment, Health and Safety Committee (EHSC) of the Royal Society of Chemistry.

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