

ALUMINIUM AND HEALTH

Fact sheet 8

ALUMINIUM AND COSMETICS

Some aluminium salts are widely used in cosmetic products like deodorants.

These products contain antiperspirant ingredients, colouring, preservatives, perfumes, etc.

The antiperspirants often contain aluminium salts such as aluminium chlorhydrate or aluminium hexachlorhydrate in quantities up to 25%.

The aluminium salts work by forming a plug at the top of the sweat ducts and reduces the sweat to the surface of the skin.

Articles and rumours, which have recently been spread through the Internet, have suggested that these cosmetics might be involved in breast cancer. The main argument given for this is that as a large proportion of breast cancer has been observed in the upper outer quadrant of the breast, which is close to the area where cosmetics are applied, a possible link between underarm cosmetics products and this breast cancer has been suggested. A published study of aluminium uptake from deodorant applied under the arms shows that the uptake into the body is maximum 0,02%. (1)

Aluminium is not classified as a carcinogenic substance by IARC, and has gone through a thorough review by an international expert group set up by WHO/IPCS. (2)

The US Food and Drug Administration (FDA) also indicate that there is no evidence to support that underarm cosmetics ingredients cause cancer. (3)

An epidemiological study conducted in the US and published in 2002 tried to evaluate the link that may exist between breast cancer and the use of antiperspirants and deodorants by studying the body hygiene habits of women with breast cancer compared to randomly chosen women of a similar age.(4)

The conclusions were: "These findings do not support the hypothesis that antiperspirants use increases the risk for breast cancer and there is no evidence of risk for breast cancer from the use of deodorants".

Concerning the location of the breast cancers, the American Cancer Society states: Most cancers occur in the upper outer quadrant of the breast because most of the breast tissue is located there.

A French study evaluating 59 published studies on deodorants/antiperspirants and breast cancer, concluded that there is no scientific evidence of any link between deodorants and breast cancer; and that due to the lack of a credible hypothesis it is of little interest to continue this line of research (5).

There is a long list of suggested causes of breast cancer, ranging from lifestyle, to hormonal effects and genetics, aluminium compounds is not on this list.

The EU Scientific Committee on Consumer Safety (SCCS) in 2014 published an opinion on the safety of aluminium in cosmetic products, where they evaluated recently published studies, including reports from Agence Française de Sécurité Sanitaire des Produits de Santé (2011), Bundesinstitut für Risikobewertung (2014) and Norwegian Scientific Committee for food safety (2013). The SCCS noted the following:

SCCS is of the opinion that the epidemiological studies do not support the hypothesis that the use of aluminium containing cosmetics may affect the risk of breast cancer.

The SCCS is of the opinion that due to the lack of adequate data on dermal penetration to estimate the internal dose of aluminium following cosmetic uses, risk assessment cannot be performed. Therefore internal exposure to aluminium after skin application should be determined using a human exposure study under use conditions.

A summary of aluminium health risk can be found in ref.7 and 8.

Reference list:

- Flarend R et al; A preliminary study of the dermal absorption of aluminium from antiperspirants using Al²⁶; Food. Chem. Toxicol. 39:163-168.
- ICPS, 1997; Aluminium, Environmental Health Criteria Document, WHO.
- US FDA, Vol.68, No 110,2003.
- Mirick DK et al.; Antiperspirant use and the risk of breast cancer; J. Natl. Cancer. Inst, 94:1578-1580.
- Namer M, Luporsi E, Gligorov J, Lokiec F, Spielmann M – L'utilisation de déodorants / antiperspirants ne constitue pas un risque de cancer du sein . Bulletin du Cancer 2008, 95 (9) 87 – 1-80.
- SCCS. Opinion on the safety of aluminium in cosmetic products. SCCS/1525/14. Rev of 18 June 2014.
- Krewski D, Yokel RA, Nieboer E, et al. Human health risk assessment for aluminium , aluminium oxide, and aluminium hydroxide. Journal Toxicol Environ. Health 2007 ; 10 (Suppl.1) 1 – 269.
- Willhite C C, et al.: Systematic review of potential risks posed by pharmaceutical, occupational and consumer exposures to metallic and nanoscale aluminium, aluminium oxides, aluminium hydroxide and its soluble salts. Crit Rev Toxicology, 2014;44:1-80.