# Asking the expert: Any potent active agents to treat excessive sweating?

**published in Beauty Forum 2015 (6), 58-60**

Persons with hyperhidrosis certainly have already tested the one or other active agent. We interviewed Dr. Hans Lautenschläger on profuse sweating, on potential natural compounds and the pros and cons of aluminium free deodorants.

**Beauty Forum: What is the difference between antiperspirants and deodorants?**

Dr. Hans Lautenschläger: Deodorants are focused on eliminating body odours particularly in the armpit areas. Since body odours are closely linked with sweating and bacterial activity, deodorants also contain antiperspirant and bactericidal components besides the odour neutralizing active agents.

Antiperspirants, by contrast, mainly focus on inhibiting increased sweating due to heat, physical activity or hyperhidrosis. As a consequence, of course, antiperspirants also reduce body odours.

**What are the specific ingredients respectively active agents?**

Sweat-inhibiting (antiperspirant) substances either have astringent features or react with the natural proteins on the body surface which they denature in the process. This also happens with the protein structures of bacteria. That is why the active substances generally also have bactericidal or antiseptic features:

- Aluminium Chlorohydrate is a strong astringent and characterized by a particularly low pH level which can irritate the skin in higher dosage. Aluminium salts have bactericidal features and, to some extent, can chemically bind odorant substances.
- Tannins from herbal or synthetic origin condense with the proteins and form complex macro molecules. Typical representatives are birch or oak bark extracts as well as gallic acid and its derivatives. A disadvantage may be their dark colour though. Also other extracts, as for instance witch hazel extracts contain astringent tannins.
- Hexamethylenetetramine alias Methenamine (INCI): The antimicrobial and antiseptic effect is based on the release of formaldehyde in the acidic environment of the skin. The so resulting formaldehyde reacts with the proteins.

Germ-inhibiting or bactericidal components:

- farnesol
- glycerol esters such as glycerol monolaurate and diglycerolmonocaprinate
- alcohol
- quarternary ammonium salts
- elementary (nano-) silver or silver compounds such as silver chloride
- chlorophenol derivatives such as triclosan and 2,2'-methylenebis(3,4,6-trichlorophenol) alias hexachlorodihydroxydiphenylmethane
- preservatives listed in the annexe of the German Cosmetic Directive (KVO)

Highly concentrated alcohol is less appropriate in the long run, above all, if is denatured with the plasticizer diethyl phthalate (INCI: alcohol denat.). The chlorophenols and preservatives listed in the KVO, without exception, have allergenic potential.

The following components have odour-masking or odour-neutralizing effects:

- essential oils
- synthetic scents
- odour-absorbing substances such as zinc ricinoleate
- substances that inhibit the sweat and lipid degrading enzymes of bacteria, as for instance triethyl citrate (INCI)

Essential oils generally contain allergenic components as can be seen from their additional INCI declaration. Several substances of essential oils also have antimicrobial features.

**What are the effects of aluminium chloride?**

Aluminium chlorohydrate still is the most important and most effective active agent. It re-

acts with the mucopolysaccharides and proteins and plugs the orifices of the eccrine glands. The higher the concentration and the lower the pH level of the preparations the more effective they are; it should be mentioned however that also the risk of irritations is increased in this case. The preparations should be administered on a preventive base since they are less effective in acute cases when profuse sweating already inhibits a permeation of active agents into the orifices of the glands. The initially daily application can gradually be reduced to once a week. Frequently the interval can even be extended.

**Why is "aluminium-free deodorant" used as an advertising slogan today?**

Due to an alleged higher risk of contracting Alzheimer or breast cancer (for women) through the intake of aluminium, aluminium-free deodorants are currently promoted. This issue has also been picked up by the media[1] and consequently is being discussed over and over.
Considering the risk assessment though, the replacement substance alum (INCI: potassium aluminium sulphate or potassium alum) is comparable with aluminium chlorohydrate. The advertising message, „0% aluminium chlorohydrate", talks consumers into believing that they buy an aluminium free product which actually is incorrect. As a matter of fact, the message rather points to unfair competition practices.

**What is your professional opinion on the alleged risks?**

There is not yet any proven evidence for the above-mentioned risks. The studies at hand are rather contradictory.[2] In my opinion there actually is no alternative for persons suffering from hyperhidrosis since deodorants without aluminium chlorohydrate usually are not as effective. The Federal Institute for Risk Assessment (BfR – Bundesinstitut für Risikobewertung) recommends refraining from aluminium chlorohydrate products right after shaving and in the case of a damaged axillary skin in order to reduce the individual aluminium intake.[2]

**Can an aluminium free deodorant be as effective as a product with aluminium chlorohydrate?**

If the focus is on body odours, the aluminium chlorohydrate free product can be an alternative. Persons suffering from hyperhidrosis however will have to resort to tannins or preferably even aluminium chlorohydrate unless they opt for pharmaceuticals (see below) or alternative methods such as iontophoresis or surgical interventions.

**Are there other effective active agents to inhibit sweating respectively body odours?**

Sage extract contains tannins and has astringent effects whereas the sweat inhibiting effect also is based on additional components. It can be administered in the form of teas or deodorants, both however are not very effective in the case of a pronounced hyperhidrosis. Valerian and St. John's wort preparations have calming and sedating effects in the case of psychogenic sweat attacks; yet there are more effective psychotropic drugs and sedatives on the market for the medical treatment.
Since sweating is controlled by the messenger substance acetylcholine, pharmaceutical anticholinergic agents are prescribed, such as glycopyrronium bromide (free base: glycopyrrolate), methanthelinium bromide and bornaprin for a peroral administration (glycopyrronium bromide also for topical use). Experts have different views on the results though.

Dr. Hans Lautenschläger

[1] Die Akte Aluminium, TV-Film von Bert Ehgartner
[2] Stellungnahme Nr. 007/2014 des Bundesinstituts für Risikobewertung (BfR), vom 26. Februar 2014