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In vivo determination of sweat resistance of sun protection products

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Introduction

Sweating may reduce to a great extent the protecting effect of sun protection products. Thus it is important to apply sweat resistant products especially during physical activities or in the summer time. This poster presents an in-vivo method to investigate sweat resistance based on the ISO method for sun protection determination (1). Sweat induction is triggered by means of a sauna.

Material & Methods

Similar to the water resistance method of the Colipa (2) the sun protection factor is determined dry initially. Another day the products are applied on further test areas on the back of the subjects before sweating is induced through a sauna session of 10 to 15 minutes at 80° C. The time in which a significant sweating may appear very much differs from person to person. Hence sweat induction will be stopped once drops of sweat are clearly visible on the back. The subjects then cool down in climatic conditions of 24°C for 20 minutes before the sun protection factor is determined again.

Results & Discussion

Calculation of sweat resistance is accomplished according to the water resistance method of Colipa (2). If the lower confidence interval lies above 50 % sweat resistance, the claim 'sweat resistance' may be applied. In studies with more than 20 test products developed for sweat resistance results showed 50 % until 90 % preservation of sun protection after sweating. This is comparable with the results we achieved with the water resistance method of the Colipa when investigating prospective water resistant products. The variation of the method is low and thus satisfying. With a confidence interval of around 10 % (mean number of subjects n = 12) it is similar to the ISO sun protection method.

Literature

(1) ISO 24444, Cosmetics – Sun protection test methods – In vivo determination of the sun protection factor (SPF). Reference Number ISO 24444:2010(E). <https://www.cosmeticseurope.eu/publications-cosmetics-europe-association/guidelines.html>

(2) COLIPA Task Force, Guidelines for Evaluating Sun Product Water Resistance, December 2005. <https://www.cosmeticseurope.eu/publications-cosmetics-europe-association/guidelines.html>

