Influence of applied quantity of sunscreen products on the sun protection factor (SPF)
A multi-center study organized by the DGK*Task Force Sun Protection

Dr Claudia Mundt, Prototyping Leave-on Products, Beiersdorf AG, Germany
Member of the DGK*Task Force Sun Protection

The protection against solar induced erythema under real conditions is dependent upon the amount of sunscreen applied. When too little is applied it is believed that a lower sun protection will result than that labelled.

The aim of this study was to quantify this effect. In this multi-center study the influence of three different amounts of three commercial sunscreen products in three test centers following the test protocol of “The International Sun Protection Factor (SPF) Test Method” (IM 2003) has been investigated.

The main result was a linear dependence of the SPF on the quantity applied. Taking into consideration the volunteer specific variations an exponential dependence of confidence interval of the in vivo SPF and amount applied is found. The highest amount applied (2.00 mg/cm²) is linked to the lowest confidence intervals. Thus, from the point of view of producing reliable and reproducible in vivo results under laboratory conditions, the recommendation of this multicenter study is an application quantity of 2.0 mg/cm².