

ABSTRACT

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COMPANY: Gattefosse

JOB TITLE: Global Applications Manager - Personal Care

Podium Title: *Impact of layering on UV protective film durability*

Background information (Short introduction)

Previously, Gattefosse has studied the impact of compositions and textures on the remanence of sunscreens during the day¹. It was demonstrated that the use of wax derivatives in a sun care product can improve the durability of the protective UV film. Moreover W/O emulsions impart longer protection than O/W emulsions. Those studies were carried out on bare skin, but we know that the daily beauty routine often includes many layers. In particular, sunscreens are often applied above a moisturizer.

Objective

The aim of this study is to look at the impact of layering on both the remanence of the protective sunscreen film, and the capacity of the UV filters to be entirely removed by cleansing in the evening. Does a moisturizing cream applied beforehand impact the remanence of the UV protection? Does it improve or reduce the cleansing efficacy at the end of the day? Does the emulsion type (W/O or O/W) of the moisturizer impact the same parameters?

Methodology

This study has been conducted with a panel of volunteers.

On one hand, sensory analysis was carried out using a classical descriptive analysis method. It allows qualitative and quantitative characterization of products.

On the other hand, to evaluate the UV protective film on the face and its durability, a tailored UV acquisition system developed by Newton Technologies was used to visualize the sun care protective film at the surface of the skin. As demonstrated in our previous study, it is possible to visualize and track the remanence of a sun care protective film with this equipment. Under UV light, bare skin appears with a very light grey film. When organic UV filters, and especially organic UVA filters, are applied on the skin, the film appears as a dark black.

Results

This study will show that the nature of the moisturizer, will modify the durability of the UV protective film throughout the day. A tested W/O moisturizing cream shows an increase in the durability of the sunscreen film, together with a much improved cleansing of the UV film at the end of the day. However, it negatively impacts the sensory feel of the sunscreen when applied on the skin.

A tested O/W moisturizing cream is less effective to sustainably maintain the UV protective film throughout the day, or to improve cleansing, but the sensory feel of the sunscreen is enhanced.

Conclusion

It is difficult to draw precise conclusions knowing that compositions differ from one product to another. However, the methodology used in this study could have a great interest for brands to elaborate their product lines, taking into account the interactions between each product/layer. It can help emphasize the sensorial benefits and enhance sunscreen performance throughout the day. Also, this type of study may be conducted alongside consumer tests, to enable the formulation of moisturizer – sunscreen couples that improve both sensory perception and UV protection for consumers.

Why is this important to the industry?

We know that sunscreens are often used incorrectly and in insufficient quantities, leading to poor UV protection. The perceived sensory properties are of utmost importance, but these are influenced by the use environment, including what moisturizers are used underneath the sunscreen. This study emphasizes the importance of this factor and opens up a new channel of fascinating product development for brands.



Vincent Hubiche is the Global Applications Manager for Personal Care within Gattefossé, supervising the group's international laboratories in China, France, India & USA. He is a recognized expert in sensory analysis and formulation, speaking regularly at conferences across the world. A graduate of the Science Faculty of Montpellier and the Institute of Industrial Pharmacy of Lyon, Vincent has over 20 years of experience in the cosmetic industry.

Examples of conferences: IFSCC (Munich, Germany, 2018), Sunscreen Symposium (Orlando, USA, 2015 & 2017), IPCE (Stresa, Italy, 2017), ISCC (Mumbai, India, 2017), Making Cosmetics (Milano, Italy, 2016), In Cosmetics (Hamburg, Germany, 2014), Cosmetic & Sensory (Tours, France, 2012), HBA (New York, 2012), SCC Quebec (Montreal, 2011), European Center of Dermocosmetology (Lyon, France, 2010).

Examples of publications: Cosmetics & Toiletries (March 2019, April 2018), IFSCC 2016 (Orlando), Personal Care Magazine (June 2016), SCC Scientific Seminar 2013 (St Louis), IFSCC 2012 (Johannesburg).