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UV Protection In Skin Care

Incorporating SPF into standard skin care products is a natural evolution, but it can be tricky. Formulators reveal the tricks of the trade.

Melanie Henson
Associate Editor

What ever happened to the "healthy" tan?

At one time, sun-darkened skin was synonymous with attractiveness and good health. Women and men alike went to great lengths to feel the burn—literally. The well-off went regularly to tanning beds, while the less proletariat had to settle for simply lying outdoors on recliners, slathered in a good coating of baby oil.

Today, doctors—and many consumers—cringe at such an image. And it's no wonder. According to the Skin Cancer Foundation, one million new cases of skin cancer occur each year, resulting in more than 10,000 deaths.

On the flip side of the coin, there's vanity. Certain UV rays have been directly linked to premature aging of the skin, including wrinkles, roughness and loss of elasticity.

These combined factors have individuals reaching for the sunscreen, and more and more purchase sunscreen-containing products for daily use.

When it comes to UV protection, visions of white noses and coconut-scented lotions come to mind. That's all well and good for a day at the beach, according to industry experts. But when it comes to daily-use moisturizers, less is definitely more. Consumers want to have their cake and eat it too. They look for products that will protect the skin from the hazardous effects of the sun, yet are greaseless, light and noncomedogenic, especially when applied to the face.

Formulating a basic skin care product can be complex. Adding either organic or chemical sunscreen only adds to the complexity. But marketers are finding new ways to make the process quicker, easier and sometimes, less expensive than it was in the past.

Global Warming is Greater Risk Than Ozone Depletion

Global warming may have more of an impact than stratospheric ozone depletion on ultraviolet radiation and skin cancer



Experts say even one serious sunburn can be damaging. Moisturizers that provide UV protection help reduce the risk.

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risk, according to a report in The Skin Cancer Foundation's Sun & Skin News. Due to actions taken to limit production and consumption of chemicals, the ozone has not increased UV exposure, according to author Brian L. Diffey DSc of the region medical physics department, Newcastle General Hospital in England. However, global warming creates the well-known "greenhouse effect," which keeps heat from escaping and allows light in. Potentially, this mean an increased skin cancer risk, he said.



"The gases slow the speed at which ozone holes can close and may also create new holes, allowing through more UV radiation," explained Dr. Diffey.

He added that vacations to sunny spots are on the rise, leading to "more suntanning, more sunburns and vast increases in long-term sun damage." Today's change to warmer conditions could encourage outdoor behavior that will increase population exposure to sunlight and the associated health risks. More info: (212) 725-5176; Fax: (212) 725-5751.

Feeling the Burn

What's so bad about sun exposure, anyway?

Well, as any average consumer can tell you, long-term sun exposure can lead to the dreaded wrinkles and mottled, "leathery" skin. Of course, there's a lot more to it than that. Scientists discovered long ago that ultraviolet (UV) radiation can lead to health hazards—the most serious, and well-known, being melanoma, or skin cancer.

This is far from a new discovery, but contemporary research has revealed that even one serious sunburn during childhood can have permanent effects, and that these are cumulative with subsequent exposures.

At the other end of the spectrum, science tells us that some sun exposure is a positive thing; the sun can help ward off depression and enables us to process vitamin D.



Avon faces regulatory challenges when exporting its SPF-containing products.

So what's the solution? The answer can only be safe sun exposure. In other words, there's no need to hide in the house with the shades drawn, but when outside, the harmful aspects of the sun—specifically, UVA and UVB—must be blocked.

Experts maintain that even on hazy days, UV danger exists, and many say the skin should be protected daily, summer and winter alike. This can be a problem for women especially, as most sunscreen products are too heavy to wear daily on the face and makeup cannot easily be applied over them.

Enter the daily-use, UV-protectant facial moisturizer. These have grown in popularity over the years to become almost an afterthought in many women's morning routines. "Daytime" skin care formulas are expected to contain SPF as low as eight but can range as high as 20 in some products. Since formulating

with sunscreens is tricky, marketers must either have formulating and testing labs on the premises, or send products out to independent laboratories to ensure that what the consumer asks for, is what she is getting.

Many companies also confront issues when attempting to market such products internationally. In these cases, products must conform to both U.S. standards and the regulations imposed by the country of export.

"As a global company, we need to use sunscreen actives that are permitted in the local and regional markets," said Rob Kalafsky, executive director, Avon Skincare R&D. "(For instance), the UK has high SPF protection demands, while Germany and Italy still favor the lower SPF sun protection products. We need to satisfy the various consumer needs across markets."

Global marketing must also take into account regional views on what a skin care product should look, feel and act like. "In Asia, for example, the formulations must be lightweight, contain high levels of inorganic sunscreens and be supportive of their skin and usage demands," Mr. Kalafsky said. "The critical point focuses on consumer acceptance and compliance with usage directions to insure protection."

The ABCs of UV

Before any of these products can be packaged off and shipped either locally or farther afield, marketers must be sure they do what they say. With its strict regulations and guidelines, there is no margin for error when it comes to SPF claims.

This isn't always easy to accomplish, according to formulators contacted by Happi. Ensuring that a product protects at minimum levels as stated on the label requires a lot of hard work behind the scenes.

Even with SPF incorporated and verified, skin care products have another hurdle: they must be aesthetically pleasing. White, zinc oxide-covered noses and heavy formulations have no place in daily moisturizers, so sun-protective skin care products must be formulated with extra care.

"There is much more involved in creating a skin care product that claims SPF, than in formulating just a basic skin care product," pointed out Juliana Lipe, cofounder of Essencia, Shreveport, LA. "In our case, it was even more difficult because our company mission is to create products that are as natural as possible."

In the end, "we chose titanium dioxide," Ms. Lipe said, "because it is a physical sunblock rather than a chemical one. It's very close to zinc oxide in its protective capabilities; it literally puts a physical block between skin and the sun."

Unfortunately, titanium dioxide (TiO₂) can appear white, a definite drawback from an aesthetic standpoint. Particle Science, located in Pennsylvania, worked with Essencia to find the perfect solution: a micronized form of TiO₂. "You can't use TiO₂ in its mineral form for this type of application," Ms. Lipe explained. "Not too many people want white stuff all over their bodies. But the micro-fine particles eliminate this problem."

All in all, it took a year for the company to develop a product that could be called both natural and UV-protective. The product, Sandalwood Moisture Therapy, is lightweight, contains SPF 15 and can be used on both face and



Formulating UV-protective skin care is challenging but worth it, according to executives at Essencia.

body, according to executives.

"We use a blend of sweet almond oil, virgin coconut oil, mango butter and vitamin E in this formula as the oil phase," Ms. Lipe said. "The water phase utilizes hydrosols."

Hydrosols are truly an innovation in the natural products industry, according to Ms. Lipe. They are a byproduct of the essential oil extraction process. Using steam distillation, the oils in a plant material rise, separating from the water. What is left is water that is rich in plant essence, constituting the hydrosol fraction.

Micronized TiO₂ works well with this suspension, according to Ms. Lipe. "The product absorbs so quickly into the skin, you'd never know the TiO₂ was there," she said. "It not only has SPF, but it's also very good for the skin; it has tons of natural vegetable oils that the body appreciates."

Creating a product that was both sun-protective and natural wasn't easy, but the results were well worth it.

"The process is very involved. There's a lot of trial and error," Ms. Lipe cautioned. "Unless you have an independent research staff, you need to rely on outside help; for instance, an independent lab. The product must be tested and must contain the minimum protection factor you're going to claim on the label. Creating this product was a challenge for us, but it was exciting."

Reaching Out

Even more harried is the marketer that distributes products outside the U.S. Such marketers must comply not only with U.S. guidelines but also with the country of export.

"Global formulations need to comply with the testing regulations established in the local markets, including key attributes of product stability/shelf life determination, SPF protection and UVA protection," said Mr. Kalafsky of Avon Skincare R&D.

Wherever the products are being shipped to, consumer needs are more or less similar.

"We offer consumers products that are safe, thoroughly tested in compliance with local regulations and meet the consumers' needs for (themselves and) their families," Mr. Kalafsky said.

Avon carries an array of products that care for the skin and also boast SPF, such as Anew Force Extra Triple Lifting Day cream SPF 15, Hydrofirming Bio6 Day cream SPF 15, beComing Brighter Days Intensive moisture cream SPF 15 with Lumin8 and Simply Complete Everyday lotion SPF 10, to name just a few.

Such products fit the bill for consumers who wish to add protection to their daily-care routines. Women can choose from any number of skin benefits, such as anti-aging, firming and line diminishment, without compromising protection from UV rays.

Of course, the international exchange goes both ways. Billions of dollars worth of cosmetic and skin care products are imported to the U.S. each year. Along these lines, products with a European name, whether headquartered in Europe or the U.S., often have an edge when it comes to high-end beauty. A particular favorite among U.S. shoppers is the French market.

High-end brand Sothys Paris will introduce a new, high-tech sun care line in January 2005. Coined Soins Soleil Cellu-Guard, the line includes products that are said to reinforce the skin's cellular defenses to help it battle the damaging, aging effects of the sun.

“Our existing makeup and sun care lines are great—the best available in the professional market,” insisted Viviane Garces-Perez, general manager of Sothys U.S.A., Inc. “However, as a leader in beauty, we believe in updating Sothys to take advantage of the emerging cosmetic advances to ensure we are always offering our customer the latest and most effective products available.”

Cellu-Guard, the trademark ingredient of the line, is a blend of fruit polyphenols and purified calophyllum oil, said to prevent collagen and elastin weakening.

“Cellu-Guard Complex is a completely advanced blend that offers triple-cell and dual-tissue protection from the sun’s damaging UVA and UVB rays,” said Christian Garces, president of Sothys USA. “On a cellular level, the complex protects the DNA from damage that can lead to premature aging or even skin cancer. On the surface of the skin, our complex aids sun-exposed skin by preventing irritation and helping retain the skin’s firmness.”

How does one little ingredient do all that? According to Sothys executives, the Cellu-Guard Complex restrains the enzymatic activity that leads to the breakdown of the skin’s collagen and elastin—“the internal fabrics” that keep skin firm and youthful-looking.

Sothys’ full line of results-oriented skin care products and cosmetics is sold in more than 80 countries around the world. The Paris-based company works with research labs and universities to develop products matching its “efficient, safe and pleasant” motto, executives said.

Lest We Forget

Women may purchase far more skin care products than men or children, but sun damage does not discriminate. According to industry experts contacted by Happi, in order to encourage the incorporation of SPF into cross-category products, the message must be put out there.

Many companies are working hard to get that message across. This fits well with the newest caring lines for children and men.



Anthony Logistics For Men is teaching men to care for both the appearance and health of their skin with products that contain SPF.

For example, Anthony Logistics For Men, New York, NY, offers facial moisturizers, lip treatments and an All-Over Body spray for men; all contain some level of sun protection.

Anthony executives aren’t afraid of the challenge of incorporating UV protection into their skin care products. “We have the best chemists in the business formulating our sun care products,” said Anthony Sosnick, founder and president.

He added that the company is helping to spread the word on skin protection. “SPF skin care products appeal to all age groups,” Mr. Sosnick said. “(The) public has become increasingly aware of how harmful the sun’s rays can be, and are willing to go the extra step and protect themselves.”

Anthony takes an active approach in spreading this message, according to Mr. Sosnick. “We provide samples of our sun care products, submit our sun products to the press to be written about for the public and spend an enormous amount of time and energy educating the salespeople in stores,” he said. “In addition, we do many skin care

consultations throughout our store base each year.”

Avon Products is helping encourage lifelong habits by starting consumers young. In addition to children’s sunscreens, “our teen lines include SPF protection to help encourage future skin care users to develop good habits,” said Mr. Kalafsky of the company. “Many of our daily moisturizers and facial treatments include broad-spectrum SPF protection.”

Avon too, is committed to educating consumers about UV protection in daily-use products. “Consumers are becoming more aware of the hazards of the sun,” Mr. Kalafsky said. “The need for daily protection from the sun, starting from childhood and continuing throughout adulthood, is critical in addressing skin cancer.”

The company is extremely active in this endeavor. “Avon provides training and education to our millions of representatives worldwide, who in turn educate and offer products and services to their millions of consumers globally,” said Mr. Kalafsky. “Avon is a member of the Skin Cancer Foundation, supports the American Academy of Dermatology, and Avon R&D supports the Bring Your Children to Work program where we always do an educational program on the need for sun protection.”

Meanwhile, many executives told Happi that sun protection is a logical extension of skin care and, formulating difficulties aside, is a more or less natural evolution.

“There is a lot of material available on this issue, and it’s easily accessible,” Ms. Lipe pointed out. “I think we’re becoming more aware of our environment and our own personal health, and that we can and should be proactive.”

Hopefully, this will mean a brighter future for upcoming generations.

“People everywhere are beginning to realize that to take care of your skin, you must care for the outside just as you do the inside,” commented Ms. Lipe. “We are approaching things from a health perspective.”

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