

# Is UV Clothing an Alternative Or Adjunct to Sunscreen Use?

Something in the air tells me that the Final Rule in Sunscreens by the US Food and Drug Administration (FDA) may be issued this month. The Proposed Final Rule that created most of the havoc among consumers was issued in February 2019. This Final Administrative Rule may be issued in several stages, with Part I handling a variety of administrative issues and Part II addressing the approval of additional GRASE ingredients.

The Proposed Final Rule removed two UV filters (PABA and trolaminesalate), designated two ingredients (zinc oxide and titanium dioxide) as the only GRASE (Generally Recognized As Safe and Effective) ingredients to date, and relegated all remaining 12 UV filters to Category III; they can still be used temporarily but require additional safety data.

But consumers were spooked by the fact that these 12 ingredients were not designated Category I or GRASE. As a result, both the industry and consumers are confused about the consequences of using those sunscreens that incorporate those 12 UV filters into their products.

The sunscreen industry, represented



By the numbers. FDA may curtail the use of some UV filters.

by the Personal Care Products Council, decided to pursue the safety testing of eight of those 12 ingredients; namely, avobenzone, octocrylene, octisalate, homosalate, octinoxate, oxybenzone, meradimate and ensulizole. To date, the results submitted have not been commented on by the FDA. If these 8-12 UV filters are not approved by the FDA, the only glimmer of hope is the recent news that possibly BEMT (Bemotrizinol) might be approved by the FDA as a category I ingredient. It hasn't happened yet, but we are hopeful.

In the meantime, the consumer is left bewildered by the state of sunscreen regulations. Any rejection of the current 8-12 organic absorbing molecules, without the approval of new UV filters, would decrease the available sunscreens in use and decrease the protection consumers receive from the sun's damaging rays.

Sun protection, when used properly and consistently, is vital to reduce the

incidence of skin cancers. That is an undisputed fact. Sunscreen lotions and creams play a vital role in protection. However, as the FDA is contemplating the fate of the approved UV filters, consumers who are sensitive to the effects of the sun and are prone to developing more serious skin problems, lesions and eventually skin cancers, should heed the warnings of overexposure to the sun. No suntanning. Avoid the harsh 10am-3pm sun exposure. Use sunscreen adequately. Wear protective clothing and eyeglasses. Seek the shade under awnings, tents and umbrellas.

## THE CLOTHING OPTION

One topic of sun protection that does not receive enough attention in the media is the use of approved clothing, both regular and photoprotective, for that purpose. Both regular and sun protective clothing offer solar protection through the textile materials and their weaving pattern as well as the dyes used.

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UV rays can be blocked by protective clothing.

It is established that clothing that is dyed red, black, or dark blue tends to offer more UV protection. UV transmission is higher through fabrics with lighter colors such as light pink, green, yellow, and white. In addition, the tightness of the weave of different fabric materials influences the UV transmission through the fabric. So linen and knitted fabrics offer the lowest protection whereas polyester and cotton blends offer the best protection.

Photoprotective clothing items are officially rated via the Ultraviolet Protection Factor (UPF) scale and more recently on the Garment Protection Factor (GPF) scale. A UPF rating of 15, 30 or 50 corresponds to Robert Sayre's rating based on the formula:

**% Transmittance (T) =  $\frac{SPF-1}{SPF} \times 100$**

For SPF 15, the %T =  $\frac{14}{15} \times 100 = 93.33\%$

For SPF 30, the %T =  $\frac{29}{30} \times 100 = 96.67\%$

For SPF 50, the %T =  $\frac{49}{50} \times 100 = 98.00\%$

To receive the Skin Cancer Foundation Seal, the fabric must block over 96.67% of the UV transmittance; i.e., a minimum of SPF 30. US regulations state that the testing process must first include two years of wear-and-tear before measuring the UV and receiving

the UPF rating. For additional information regarding this process, readers may wish to consult the article entitled "An Overview of Ultraviolet-Protective Clothing" by Jasmin Lu and Erum Ilyas published in *Cureus* in July 2022.

Clearly, the application of sunscreens over the exposed areas of the body and the use of photoprotective clothing, along with the avoidance of the harsh hours of the direct sun, may decrease the risk of sun damage to our bodies. ■