



With summer soon upon us, consumers are on the lookout for the best self-tanners to give them a safe, beautiful sunkissed look without damaging their skin.

Image Source: Pexels user Ed Gregory

In the early 1920s, Coco Chanel spent her holiday on a Mediterranean cruise and got too much sun. At the time, pale skin has been a fashion mainstay for centuries, suggesting a kind of rarified femininity unexposed to the harsh rays of the sun. But when Chanel disembarked from that cruise and stepped out into Cannes, she instantly changed history and her golden skin became a fashion must-have. “I think she may have invented sunbathing,” says Prince Jean-Louis de Faucigny-Lucigne, a close friend of Chanel. “At that time, she invented everything.”¹

In the years that followed, women and women alike went to great lengths to achieve their own tans, from slathering their legs with Bovril to covering themselves in oil and roasting like potatoes in the sun to encapsulating themselves in tanning beds in search of the perfect sun-kissed look. Tans became a status symbol all their own, particularly for those living in cold and dreary climates; a tan suggested luxury, travel, and money. In a strange twist of fate, tans were no longer evidence of outdoor labor, but indicators of leisure, youth, and vitality.

Then two vital things happened that changed the tanning game forever: the economic strife of the 1970s and emerging science connecting tanning to undesirable and dangerous skin changes such as cancer and premature aging. Without the means to travel to sunny locales, people in the north increasingly turned to self-tanners to create a simulacrum of vacation-tanned skin. Meanwhile, even those with access to natural rays began seeking out safer alternatives to avoid the potential damage of the sun. These events coalesced the FDA approval of dihydroxyacetone (DHA) for use in self-tanners, sparking a virtual revolution in how people obtained the look of sun-kissed skin.

But early self-tanners suffered from formulation and design flaws and more often than not resulted in a streak-orange mess rather than an evenly tan glow. With consumers overwhelmingly rejecting the newly released products, self-tanner manufacturers poured resources into creating formulas that were both user-friendly and capable of producing even, realistic color. Their work paid off; although DHA remains the mainstay of self-tanners, modern DHA is a far cry from that of days past as

“refinements in the DHA manufacturing process has aided in the creation of formulations that produce a more natural looking color.”²

Today, the self-tanning industry is booming and it’s not expected to slow down anytime soon. According to IBISWorld, “The Self-Tanning Product Manufacturing Industry has experienced meteoric growth ... and is set to continue on this growth trajectory.”³ Improved color and innovative application methods, including sprays, lotions, oils, wipes, and slow-build lotions, are credited with driving demand, offering consumers multiple entry points to the self-tanning market. “People are demanding new products that give the most natural glow,” says June Jensen, Director UK Beauty for NPD, “People no longer want to look orange, they want to look like they have just been on holiday. There’s a marked difference.”⁴

As both drug store and department brands look to raise the appeal of their products and consumers continue their search for the best self-tanners, developing easy-to-use products capable of creating the specific colors consumers are looking for is essential to success. As the standard for color quality grows ever-higher, [spectrophotometric analysis](#) is becoming more important to the self-tanning industry than ever before.



Spectrophotometric measurement of self-tanners is essential to ensuring that users get the results they are looking for and resist the urge to engage in more dangerous forms of tanning.

Image Source: Unsplash user Tomas Salas

Spectrophotometric Analysis of Self-Tanner

Spectrophotometers are designed to see color the way your eye sees it, producing data that [objectively quantifies chromatic information](#). The extraordinary sensitivity of these sophisticated instruments allows you to detect even the smallest color variations and correlate ingredient and process variables with color outcomes. While spectrophotometers may be used to measure specific ingredients, [such as DHA](#), as part of chemical analysis, they also allow you to do something else: measure the visible effects of self-tanners on the user. In other words, spectrophotometers don’t just let you analyze the chemical content of a formulation, but actually assess the color produced by each product on the skin itself.

Spectrophotometers are considered to be [highly reliable instruments with which to evaluate skin color](#). As noted by one study in *Cancer Causes and Control*:

Skin reflectance measurement devices such as spectrophotometers utilize technology that allows for objective, reliable, in vivo quantification of human skin color. Measures of skin color via spectrophotometry have been demonstrated to be reproducible, not affected by ambient lighting, and independent of skin pigmentation.⁵

Today's portable, non-contact spectrophotometers allow you to easily evaluate the color of the skin itself to evaluate degree and quality of color change on all skin types, allowing formulations to be perfected based on the user's natural skin tone. This personalization of products and ability to find the best self-tanners for your complexion is one of the many innovations that have increased appeal of self-tanning to those who were once hesitant; knowing a product has been found to create a beautiful sun-kissed glow on your specific skin tone can ease the concerns many have about unnatural and obvious coloration.

But degree and quality of change are not the only considerations; self-tanner as a group have developed a reputation as difficult to use and easy to get wrong that continues to hound them despite the development of user-friendly products. As such, providing as much information as possible to users about what to expect from a particular product is paramount to making consumers feel confident using a self-tanning product. Spectrophotometers allow you to investigate the nature of color change produced by self-tanners to establish reliable guidelines regarding how soon color change happens and how long it lasts. S. Peter Foltis of L'Oréal writes, "Various spectrophotometric methods can be used to evaluate the coloration parameters of self-tanners such as onset and longevity of color." Capturing and verifying these parameters enhances consumer trust and enhances user experience.



Formulating and testing self-tanners for a variety of skin tones gives users confidence that a product will work with their complexion.

Image Source: Pexels user Alexander Shustov

HunterLab Innovation

Just as the quality of self-tanners has grown by leaps and bounds, so too has spectrophotometric technology. Today, HunterLab offers the most sophisticated spectrophotometric instruments available to allow our customers to analyze their products with accuracy, precision, and ease. Our lineup of portable, benchtop, and on-line spectrophotometers ensures that you are able to select exactly the right tool to enhance your research, development, and manufacturing process and create the best formulations possible both in terms of color quality and ease of use. [Contact us](#) to learn more about our innovative range of spectrophotometric instruments, customizable software packages, and world-class customer support services.

1. "A Short History of Tanning," February 19, 2012,
<http://www.theguardian.com/commentisfree/2012/feb/19/history-of-tanning>
2. "Formulation and Evaluation of Self-tanners," October 4, 2013,
<http://www.cosmeticsandtoiletries.com/formulating/category/skincare/premium-Formulation-and-Evaluation-of-Self-tanners-226526701.html>
3. "Why Sunless Tanning Is Winning," August 22, 2014, <http://sunlesstanningguide.org/why-sunless-tanning-is-winning/>
4. "Texture and Innovation Drive UK's Self-Tanning Market On," July 16, 2015,
<http://www.cosmeticsdesign-europe.com/Market-Trends/Texture-and-innovation-drive-UK-s-self-tanning-market-on>
5. "Comparing Alternative Methods of Measuring Skin Color and Damage", April 2009, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2702995/>