

sunscreen

How does sunscreens work?

Sunscreens help to filter out UV radiation similar to the function of a tinted window. Some light penetrates, but not as much as if the window wasn't tinted. Sunscreens work by using one or a combination of 2 types of active ingredients: Organic and Inorganic filters which protect us from the two types of damaging UV radiation namely UVA and UVB rays.

What are Organic and Inorganic Sunscreens?

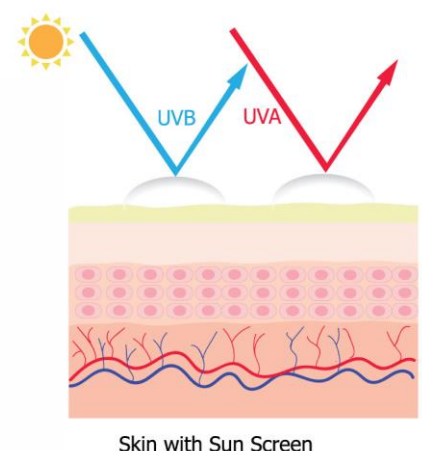
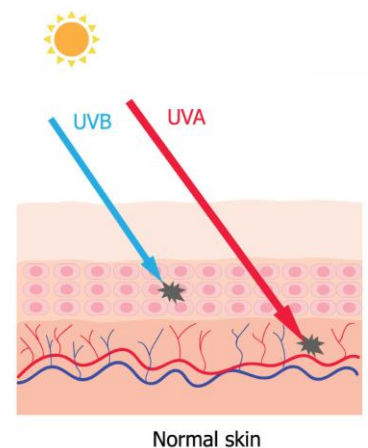
Organic sunscreens are chemical filters and are sometimes referred to as chemical sunscreens. Chemical sunscreens work by absorbing UV rays.

They work by taking advantage of the first law of thermodynamics which is that energy can be transformed from one form to another, but it cannot be created or destroyed.

Its chemical structure is a ring of bonded carbon molecules. When UV rays 'hit' the sunscreen chemicals, the rays are absorbed by the chemical bonds holding the ring together. As the bonds absorb UV radiation, the components of the sunscreen slowly break down and release heat. This process robs the UV rays of some of its energy, making them far less effective at damaging the skin.

This is one of the reasons why sunscreen needs to be reapplied. Some of the organic chemicals used will be photostable and some of them, however, will slowly break down as they absorb UV light over time. There are a variety of ingredients that are used to help slow this breakdown, such as photostabilisers and anti-oxidants.

Physical sunscreens are physical filters and sometimes referred to as mineral or inorganic sunscreens. Physical sunscreens work by reflecting and scattering UV rays. They form a shield over the skin and bounce off the UV rays, which inhibits penetration into the skin.



What does SPF mean?

SPF stands for Sun Protection Factor. It's a number that you can use to help determine how long you can stay in the sun before getting a sunburn.

There are two ways to understand it:

1. Your skin has a natural SPF, partially determined by how much melanin you have, or how darkly pigmented your skin is. The SPF is a multiplication factor. If you can stay out in the sun 15 minutes before burning, using a sunscreen with an SPF of 10 would allow you to resist the burn for 10x longer or 150 minutes.
2. Another way to look at it is as percentages:
 - SPF 15 filters out approximately 93 percent of all incoming UVB rays.
 - SPF 30 keeps out 97 percent and
 - SPF 50 keeps out 98 percent.

As you can see, no sunscreen can block out all UV rays.

There is, however, a problem with the first SPF explanation. No sunscreen, regardless of strength, should be expected to stay effective for longer than two hours without reapplication, so it is extremely important to reapply sunscreen.

Because sunburn is primarily a UVB effect, it is possible for a sunscreen product to deliver high SPF preventing the "reddening" of the skin but may offer no protection for UVA. Plenty of damage can be done without the red flag of sunburn being raised. To deliver true broad spectrum protection, products must also block a significant fraction of UVA.

Nimue SPF
Range

