

Types of Sun Block Formulas



Sunblocks SPF10 and higher, and Sunscreens below SPF10, use either a **Chemical Absorber** to prevent sunrays from penetrating the skin by converting it to heat, or a **Physical Blocker** to reflect the ray.

Chemical Absorbers

Chemical Absorbers generally include names such as salicylate, cinnamate, or benzophenone. There are several variations within those chemical families and a formula will often include two or more absorbers. By converting the energy of a sunray into heat there is a reduction in the damage these rays can do to your deep skin. A newer absorber called avobenzone (Parsol 1789) has been shown to provide added protection against UVA rays under lab conditions. We do not use avobenzone because we feel that the benefits of this chemical are lost during "real world" conditions.

Physical Blockers

Physical Blockers are either Titanium Dioxide (TiO₂) or Zinc Oxide which literally reflect the sun's rays. While in theory these are wonderful we have not yet seen formulas which are able to hold these particles in place during activity nor have we been able to develop such a formula which meets or exceeds our current formulas. If such a technique were found the result would be better protection against UVA rays.

With those as the options for active ingredients formulators now choose one of three **delivery systems** to present and hold the sunblocks to your skin:

Mid Layer Sunblocks
Top Layer Sunblocks
Surface Sunblocks

TYPES OF SUN BLOCK BASES:

Bonding, film or wax

The base or lotion in which the absorbers or blockers are suspended is very important because it will ultimately determine how well the sun block works.

A **"bonding" base works best** because it enables the absorbers to cling to the skin. Imagine your skin as a series of ridges and valleys. Bonding base lotions hold the absorber or blocker tightly to the upper ridges, letting the skin breathe in the valleys. Bonding base lotions continue to work through several swims and even profuse sweating, but are easily removed with soap and water. CCI's Stay-Put® technology is the cutting edge in bonding base Sun Blocks, and is only found in Sawyer® Solutions Sun Blocks!

Most sun blocks are film-based. These lotions suspend the absorbers on the skin's surface instead of "bonding" to the skin. They are more easily washed off by sweat or water and must be reapplied frequently. Often they are greasy and stain clothing and equipment.

Wax-based lotions are used with both physical and chemical blockers. They tend to be thick and gooey and, though they resist being compromised by water, they completely coat the skin, ridges and valleys alike, and prevent it from breathing. This can result in an increase in core body temperature, especially if one is engaged in sporting events. Eventually sweat will break through and compromise the protection. On very hot days (85° F and above) the wax can simply melt, breaking down the protection shield. Wax-based formulas also make for a slippery grip and can be hard to remove from equipment such as kayaks and diving suits.

When wax-based lotions were first introduced they provided an advantage over film-based lotions by being relatively waterproof, but today the superior bonding base found in Sawyer® Stay-Put® lotions provide this advantage as well, with less drawbacks.

