



Innovative nano-free mineral UV filters for cosmetic formulations

ADParticles presents two lines of **nano-free mineral filters**, **EnhanceU** & **EffectiveU**, to face main challenges in sunscreen cosmetics market: high SPF, broad-spectrum protection and photostability.

Our innovative ingredients can be used in

- sun care formulations
- color cosmetics with protection

Sun Filters	INCI	Type	Recommended use	Characteristics UVA/UVB, λ_{crit}
 effectiveU-T NEW	Titanium dioxide, silica	Sun care	SPF 10-25	≥ 0.8 , 380 nm
 enhanceU -S	Titanium dioxide, zinc oxide, silica	Sun care	SPF 30-50	≥ 0.7 , 380 nm
 enhanceU -T	Titanium dioxide, silica	Sun care	SPF 30-50	≥ 0.7 , 380 nm
 enhanceU -T-light	Titanium dioxide, iron oxide, silica	Sun care with color	SPF 30-50	≥ 0.6 , 380 nm
 enhanceU -T-medium	Titanium dioxide, iron oxide, silica	Sun care with color	SPF 30-50	≥ 0.6 , 380 nm
 enhanceU -T-warm	Titanium dioxide, iron oxide, silica	Sun care with color	SPF 30-50	≥ 0.6 , 380 nm

Fabrication procedure: The **dry dispersion** method, licensed in exclusivity to ADParticles, allows the dispersion and anchoring of particles of different sizes. Filters sizes are $>100\text{nm}$ (**nano-free**).



Nanoparticles

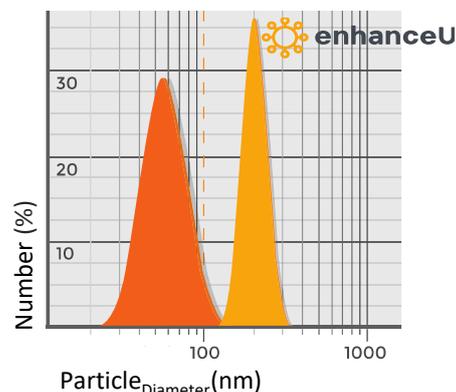


Micrometric particles



Micro-nano composite.
Nano-free.

Nanometric \leftrightarrow Nano-free



New structures are obtained where the light access to smaller particles in the filter is facilitated. An increase in the SPF final formulation is achieved.

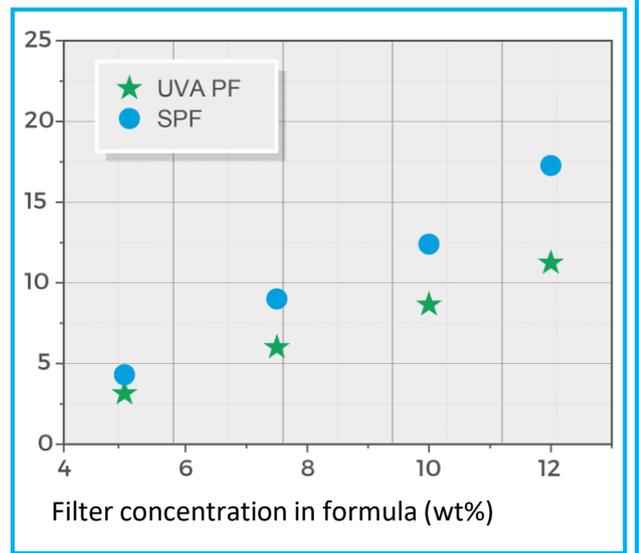


Nano-free mineral UV filter that provides **broad spectrum protection**, with an important covering of **UVA region**.

UV absorption spectrum characteristics:

- **UVA/UVB** ≥ 0.8 (>0.3, 2006/647/CE);
- Critical wavelength >380 nm;
- Broadband protection: maximum at 340 nm;
- Photostable.

It may be used in combination with other filters & SPF boosters, in sun creams or in daily creams with protection.



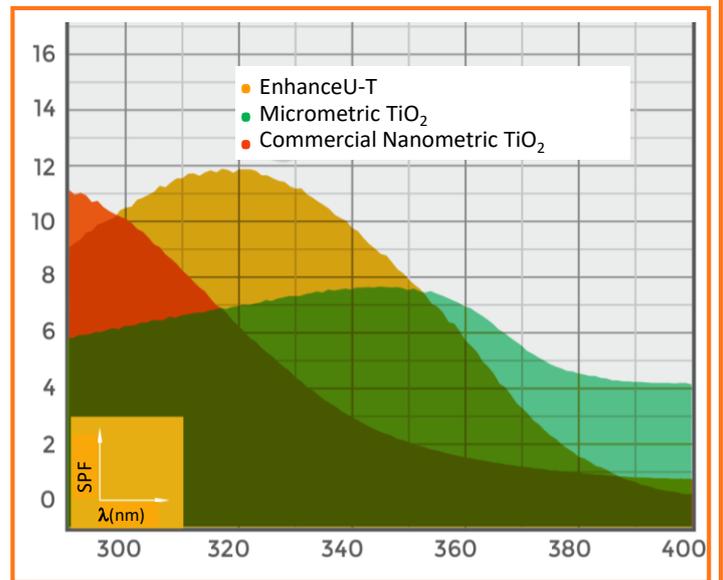
Nano-free mineral filter with a **better UV absorption** than nanometric and micrometric filters.

All EnhanceU filters fulfill the conditions:

- **UVA/UVB** ≥ 0.6 (>0.3, 2006/647/CE);
- Critical wavelength >380 nm;
- Broadband protection: max. at 320 nm;
- Photostable.

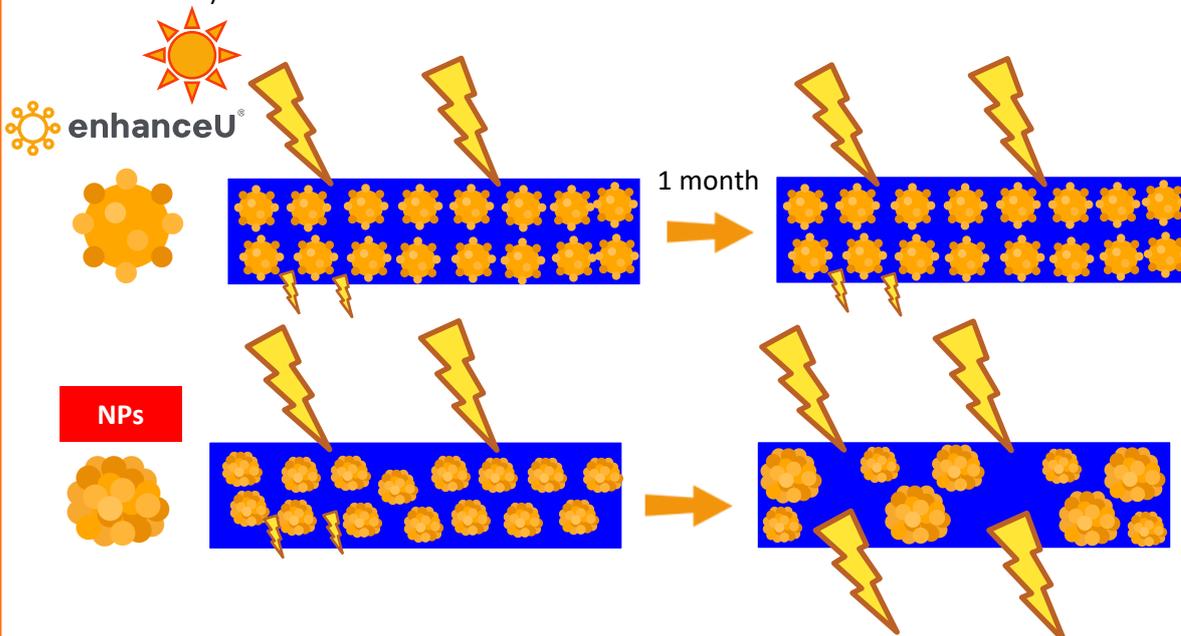
Sun care: EnhanceU-T and EnhanceU-S are designed to achieve high SPF values and **broad spectrum** protection in natural & **Ecocert** formulations

Color cosmetics: EnhanceU-T-Light, EnhanceU-T-Medium & EnhanceU-T-Warm



Combine **color with sun protection**. Ideal for **Ecocert BBcreams, CCcreams & colored sunscreens!**

High SPF & Stability: EnhanceU-T filter has shown **higher SPF and stability than nanoparticles, NPs**, (commercial Nanometric filter, same INCI) in a formula with same concentration (12% wt, SPF 30; 15% wt, SPF 50; *in vitro* measurements).



EnhanceU blocked UV light with high sunscreen stability: **NO-ageing.**

Nanoparticles agglomerate due to Brownian motion and produce regions where UV light crosses: **SPF decreases.**