Et-VC™

Multi-Functional Vitamin C Derivative

Synergistic Effect in Sun Protection

Clinical Study

Et-VC™

INCI Declaration

3-*O*-Ethyl Ascorbic Acid

Benefits

- Anti-oxidation
- Scavenge free radicals
- Protect DNA from UV
- Fight photoaging
- Stimulate collagen synthesis
- Reduce dark spots
- Even out skin tone
- Inhibit melanogenesis

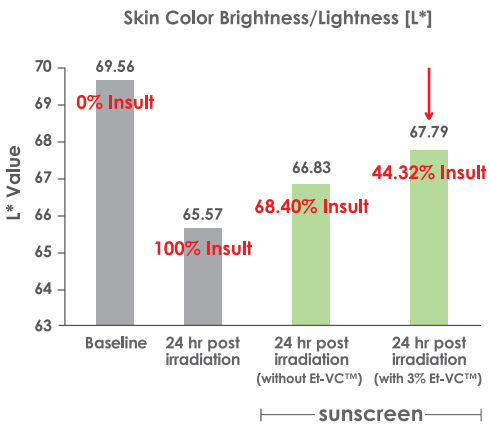
Applications

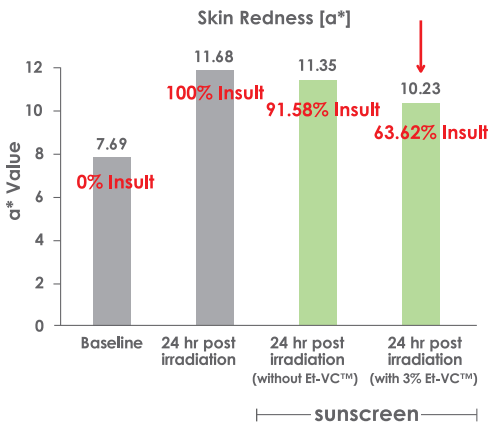
- Skin whitening/ lightening
- Anti-aging with correction of dark spots
- Sun care products for outdoor protection
- BB/CC cream

The antioxidant property of Vitamin C and its role in boosting collagen synthesis have made Vitamin C a vital molecule for skin health. Studies have shown that Vitamin C performs to prevent and treat ultraviolet (UV)-induced photoaging by protecting the skin from damage caused by the sunlight. The damage from UV radiation on skin is due, in part, to the generation of reactive oxygen species (ROS) which causes immediate inflammation and sunburn reaction to chronic effects such as photoaging. Excessive ROS can stimulate inflammatory response and collagen degradation leading to premature aging skin and wrinkle formation. Vitamin C is not a sunscreen as it does not absorb or scatter UVA or UVB spectrum; however, its antioxidant property can protect skin against UV-induced free radicals therefore achieving photoprotection.

Et-VC™ (INCI: 3-*O*-Ethyl Ascorbic Acid), being a potent Vitamin C derivative, not only provides superb whitening effects, but also serves as a potent anti-aging active that boosts collagen synthesis and prevents skin from DNA damage. New finding proves that Et-VC™ can protect the skin from UVB damage measured by skin redness — erythema (a* value) and skin lightness (L* value).

Et-VC™ Photoprotection by SPF Determination (FDA)





Clinical Study

Et-VC™

To evaluate the effectiveness of the sunscreen products with and without Et-VC™, the Sun Protection Factor (SPF) was determined on human skin as a modification of the method defined by the FDA Sunscreen Final Rule. 22 subjects were enrolled; L^* and a^* values of the skin were detected 24 hours post UVB exposure. The results show that sunscreen product with 3% Et-VC™ can significantly enhance the ability of UV protection (L^* value +24.08%, a^* value -27.96%), suggesting that Et-VC™ as a topical antioxidant supplement can help improve the performance of sunscreen products.

Tips in Formulating with Et-VC™ in Sun Care Products

UV filters are divided into two categories, including physical (inorganic) and chemical (organic) sunscreens. The approved inorganic sunscreens are titanium dioxide (TiO_2) and zinc oxide (ZnO), both of which offer protection from UVB to visible ranges and are generally stable. Organic sunscreens are synthetic chemicals that absorb UV using the characteristic of their molecular structure. They have aromatic rings that absorb radiation of certain wavelengths. These UV filters can be classified into different families according to their chemical structure: *benzophenone derivatives, p-aminobenzoic acid and its derivatives, salicylates, cinnamates, camphor derivatives, triazine derivatives, benzotriazole derivatives, benzimidazole derivatives, dibenzoylmethane derivatives, crylenes* and others.

We selected six commonly used chemical sunscreens to test with 2% Et-VC™ in stability study, and the result showed that ***salicylates (Ethylhexyl Salicylate), triazine derivatives (Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine)*** and ***dibenzoylmethane derivatives (Butyl Methoxydibenzoylmethane)*** have the best stability with Et-VC™, while ***benzophenone derivatives (Benzophenone-3 & Benzophenone-4), cinnamates (Ethylhexyl Methoxycinnamate)*** and ***crylenes (Octocrylene)*** also remain stable. Inorganic sunscreens—like zinc—which contain metallic oxides were also used, but they may affect the stability of Et-VC™. From the study, ***Titanium Dioxide (and) Isopropyl Titanium Triisostearate*** and ***Titanium Dioxide (and) Triethoxycaprylylsilane*** from the inorganic category remained stable.

CORUM
6F, No. 360, Ruei Guang Rd., Neihu, Taipei, Taiwan
Tel: 886-2- 87516060 | Fax: 886-2- 87516363
sales@corum.com.tw | www.corum.com.tw

Copyright © Corum Inc. All Rights Reserved / EV3-EN-p2-201905-800