

Vitamin E Research Paper

APPEARS INS



There are two main roles that Vitamin E plays in skincare formulation. It works as a powerful antioxidant and a natural preservative to slow the oxidation of products once they have been opened. To align with Three Ships values, natural ingredients like Vitamin E are used for both of those reasons. Vitamin E, also known as tocopherol, is used in products like the Glow and Hydrate Oil Serums and the Radiance Day Cream.

VITAMIN E IS A POWERFUL ANTIOXIDANT

Vitamin E is a fat-soluble Vitamin that is an umbrella term for about 8 types of molecules. It has been known to work as an antioxidant, protecting cells from sun damage, and help extend a product's shelf life.

It can be found in many carrier oils like almond, olive, and palm oils at high levels, making these sufficient substitutes for adding Vitamin E. In addition, Vitamin E has been used for moisturizing the skin and hair for generations due to its emollient benefits and the healthy shine it gives to the body.



Traditionally, the process to extract Vitamin E is a long process that requires multiple steps of refining from soy oil. Soy oil goes through a step that strips the oil of all other constituents before it can be called Vitamin E through processes like esterification, refrigeration, filtration, etc. Soy oil is distilled through deodorization. Deodorization is a process that takes unrefined and opaque oil, heats it up with steam, and uses the different boiling points of molecules in the unrefined oil to separate them. Once the new distillate is collected, it is further processed to separate the unwanted chemicals from the Vitamin E product. The new oil is then put through a process called refrigeration, which crystallizes the liquid. The refrigeration process removes heat from a liquid to turn it into a solid and crystalize. This crystal liquid is then further refined through molecular distillation before it can be sold as Vitamin E. The exact method of extraction of Vitamin E that Three Ships sources is proprietary information.

VITAMIN E HAS BEEN USED FOR MOISTURIZING THE SKIN AND HAIR FOR GENERATIONS

There are eight molecular forms of Vitamin E - four tocopherols and four tocotrienols. Of these eight molecular forms, alpha-tocopherol is the most active molecule. It is a free radical scavenger that prevents lipid peroxidation, a chain of reactions that change the molecular structure of lipids in a negative way. It is the process in which free radicals “steal” electrons from the lipids in cell membranes, resulting in cell damage. Due to Vitamin E’s antioxidant activity, it can be used for the protection of cell membranes, such as in skin cells, and be used to preserve formulations.

SCIENTIFIC STUDY

UV Photoprotection by Combination Topical Antioxidants Vitamin C and Vitamin E

The purpose of this study was to investigate the prevention of free radical-induced damage on the skin caused by ultraviolet light radiation, through the use of antioxidants like Vitamin E. In a randomized, double-blind study, a light moisturizer formulated with Vitamin E was applied to the forearms of 10 healthy Caucasian participants. The results showed that the area of skin where the Vitamin E moisturizer was applied appear less damaged than the untreated skin, which showed signs of erythema. This concluded to the researchers that Vitamin E proved to be effective at minimizing erythema and reducing inflammation caused by UV light. These results suggest that Vitamin E is effective at protecting the skin and preventing damage caused by UV light.

Experimental Evidence on the Reduction of Collagenase Expression by Vitamin E

In this study, the researchers used Western Blot and Northern Blot analyses to study the activity of Total Protein Kinase C (PKC) and collagenase (MMP-1) as well as the effect of alpha-tocopherol (Vitamin E) on these enzymes.

Vitamin E was found to reduce PKC activity, and thereby also reduced collagenase expression. PKC is an enzyme family that controls the expression of collagenase. It’s activity increases with age as well as by UV light and free radicals among other factors. Collagenase is the enzyme that is responsible for degradation of collagen. Vitamin E was also found to prevent lipid peroxidation of human diploid fibroblasts.

Vitamin E, also known as tocopherols, is a hardworking component in cosmetics that provides antioxidant and preservative effects. Studies have investigated the antioxidant activity of Vitamin E and seen its effects both individually and when combined with other components, such as Vitamin C. Three Ships obtains Vitamin E that is extracted and refined from soy oil, and this is used in products such as the Glow and Hydrate Oil Serums, and the Radiance Day Cream.