

## TECHNICAL DATA SHEET

**Product Name:** L-Ascorbyl Palmitate

**INCI Name:** Ascorbyl Palmitate

**CAS:** 137-66-6

**Synonyms:** L-Ascorbic Acid, 6-hexadecanoate; L-Ascorbic Acid, 6-Palmitate; Palmitic Acid, 6-Ester with Ascorbic Acid; 6-Hexadecanoyl-L-ascorbic Acid; 6-Monopalmitoyl-L-ascorbate; 6-O-Palmitoyl-L-ascorbic Acid; 6-O-Palmitoylascorbic Acid; 6-Palmitate-L-ascorbic Acid; 6-Palmitoylascorbic Acid; Ascorbic Acid 6-Palmitate; Ascorbic Acid Palmitate; Ascorbyl 6-Palmitate; L-Ascorbyl Palmitate; NSC 402451; Ondascora; Palmitoyl L-Ascorbic Acid; Quicifal; Vcpal; Vitamin C Palmitate

**Chemical Classification:** Ester, polyol, heterocyclic compound

**Functional Classification:** Antioxidant, skin and hair conditioner, skin whitening agent

**IUPAC Name:** (2S)-2-[(2R)-4,5-Dihydroxy-3-oxo-2-furyl]-2-hydroxy-ethyl] hexadecanoate

**Description:** Ascorbyl palmitate is an ester of ascorbic acid (vitamin C) and palmitic acid. The esterification occurs between the hydroxyl group (-OH) of ascorbic acid and the carboxyl group (-COOH) of palmitic acid. The result is an ester bond (-COO-), which links these two molecules into one lipid-soluble form. The liposolubility of ascorbyl palmitate allows it to easily integrate into lipid structures such as cell membranes and lipoproteins, where it can effectively protect lipids from oxidation. It is somewhat less potent than pure ascorbic acid, but it possesses greater stability and better penetration power. The melting point of ascorbyl palmitate is around 107-117 °C. It appears as a white to yellowish powder, odorless. It is insoluble in water, soluble in ethanol and oils.

**Skin Effects and Benefits:** Plays an important role in photoprotection and preventing the appearance of signs of skin aging. It inhibits the enzyme tyrosinase, which participates in the synthesis of melanin. It is an essential cofactor in the biosynthesis of collagen. Necessary for the transition of procollagen molecules from fibroblasts into the extracellular space. When combined with vitamin E, it provides protection against UVB rays. As a potent antioxidant, it reduces the oxidized form of vitamin E and returns it to its active form, thereby reutilizing the antioxidant properties of vitamin E. In the form of

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skin exfoliation lotions, it is used for daily care because it gently exfoliates the skin while maintaining hydration.

- **Antioxidant Action:** Ascorbyl palmitate is a strong antioxidant. It neutralizes free radicals that arise from exposure to UV rays, pollution, and other environmental stressors. As an antioxidant, it helps protect skin cell structures, such as DNA, proteins, and lipids.

- **Collagen Production Stimulation:** Vitamin C is essential in the process of collagen synthesis, the main structural protein in the skin. By increasing collagen synthesis, Ascorbyl palmitate helps improve skin elasticity and firmness, which affects the reduction of visible fine lines and wrinkles. Improved collagen synthesis also helps maintain the integrity of the dermal matrix, which is key for a healthy skin appearance.

- **Skin Lightening and Hyperpigmentation Reduction:** Reducing tyrosinase activity and decreasing melanin production leads to a gradual lightening of pigment spots and a more even skin tone.

- **Improvement of Skin Barrier Function:** Ascorbyl Palmitate may help maintain and strengthen the skin barrier. It reduces transepidermal water loss and maintains skin hydration, which is crucial for healthy, elastic, and smooth skin.

- **Increased Penetration into Deeper Skin Layers:** The skin consists of several layers, with the outer layer (epidermis) acting as a barrier. The epidermis contains the stratum corneum, which is the upper layer of dead skin cells and lipids that prevent the passage of water and harmful substances. Thanks to its lipophilicity, Ascorbyl palmitate can more effectively integrate into this lipid layer, allowing better penetration into deeper skin layers.

- **Compatibility with Other Antioxidants:** The antioxidant effect can be enhanced by combining it with vitamin E. Encapsulation in various carriers provides better stability of this vitamin and its controlled delivery to skin cells. Added as an active ingredient, it does not color the final product yellow, as is the case with L-ascorbic acid.

**Usage:** Considered highly safe. Can be applied daily, over a long period of time. Typical concentrations range between 0.5-8%. In cosmetic products for lightening (whitening) spots and flecks, it is used in concentrations of 3-5%. Can be safely combined with other cosmetic active substances (UV filters, vitamin A derivatives, glycolic acid). Rarely, after application, stinging, erythema, and skin dryness are observed. Such changes quickly subside after applying skin hydration products.

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**Raw Materials Source:** L ascorbic acid and palmitic acid

**Manufacturing Method:** L-ascorbyl palmitate is synthetically produced by adding palmitic acid (a fatty acid) to l-ascorbic acid to form a fat-soluble ester.

**Animal Testing:** The substance is not tested on animals

**GMO:** Non-GMO

**Vegan:** Does not contain components of animal origin



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