

TECHNICAL DATA SHEET

Product Name: Cetyl Palmitate

INCI Name: Cetyl Palmitate

CAS: 540-10-3

Synonyms: Palmityl palmitate, hexadecanoic acid hexadecyl ester; hexadecyl hexadecanoate

Chemical Classification: Ester

Functional Category: Skin conditioning agent ~ occlusive, emollient; fragrance ingredient

IUPAC Name: Hexadecyl hexadecanoate

Chemical-Physical Properties: Cetyl palmitate, also known as hexadecyl palmitate, is an ester of palmitic acid and cetyl alcohol. At room temperature, cetyl palmitate is solid, but waxy and very soft to the touch. This property allows it to easily melt upon contact with the skin, providing a rich, oily feel that is not heavy. It has a relatively low melting point, typically between 44 and 54°C, which allows it to be easily incorporated into formulations that activate at body temperature. It can be completely transparent to slightly cloudy, depending on the degree of refinement. It has a very mild, almost unnoticeable odor. It is insoluble in water but soluble in oils and most organic solvents. This property makes it compatible with many lipids and oils, which is useful in skin and hair care formulations. It is very stable across a wide range of temperatures and pH levels, making it a reliable choice for formulas that must withstand various storage and usage conditions. HLB = 10.

Benefits:

- **Emollient Properties:** Cetyl palmitate softens and moisturizes the skin, making it smooth and soft. When applied to the skin, it forms a thin, invisible layer that helps prevent water loss from the skin's surface. This layer acts as a barrier that reduces moisture loss, helping to maintain hydration and protect the skin from drying out.
- **Texture and Stability:** Adds a pleasant texture to cosmetic products, improving

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TECHNICAL DATA SHEET

their consistency. As a thickener, it helps stabilize formulations, ensuring that products retain their structure over time.

- **Carrier of Active Ingredients:** In cosmetic formulations, it can improve the distribution and absorption of other ingredients, allowing them to work evenly on the skin. This is particularly useful in products containing moisturizing, anti-aging, or soothing ingredients.

- **Skin Compatibility:** Gentle on the skin and suitable for all skin types, including sensitive skin. Does not cause irritation and can be used in baby care products.

Usage: Cetyl palmitate is used in various cosmetic formulations as a thickener due to its emollient and stabilizing properties. It is added to the oil phase during product making, where it is heated along with other oils until it melts and distributes evenly in the mixture. After mixing the oil and water phases, it helps stabilize the emulsion and improve the texture of the final product. In face and body creams and lotions, it is used at a concentration of 1-5%. In lip balms, at a concentration of 3-10%, it allows for a firm and smooth texture, providing long-lasting hydration and protection. In lipsticks and makeup, concentrations range between 2-10%, improving texture, stability, and allowing for smooth application. In face masks, cetyl palmitate is used at a concentration of 1-5%, contributing to a smooth, creamy texture that is easy to apply and remove, and increasing skin hydration. In hair products, such as conditioners and masks, it is used in similar concentrations, helping condition the hair, improve texture, and facilitate product application. In body care products, such as lotions and butters, it provides a rich, creamy texture, increases hydration, and offers long-lasting skin protection.

(CIR) Expert Panel for Cosmetic Ingredient Safety: The CIR Panel (Cosmetic Ingredient Review Panel) is an expert panel of a nonprofit organization established in 1976 to assess the safety of cosmetic ingredients used in personal care products. The CIR Panel consists of experts in toxicology, dermatology, pharmacology, and other relevant scientific disciplines. The panel independently reviews and evaluates scientific data on ingredients to determine if they are safe for use in cosmetics. The results and recommendations of the CIR Panel are published in the CIR Annual Scientific Review, which is available to the public and industry and serves as a guide for cosmetic manufacturers regarding the safety of the ingredients they use in their products.

The CIR expert panel assessed the safety of cetyl palmitate, ethylhexyl palmitate, and isopropyl palmitate in 2001 and concluded that these ingredients are safe for use in cosmetic products. This assessment is based on scientific data showing that palmitates

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TECHNICAL DATA SHEET

are non-toxic because they hydrolyze to palmitic acid and the corresponding alcohols. Studies conducted on the skin showed no evidence of toxicity, even with long-term use. Eye irritation tests showed very mild irritation or none at all. Review of tests on human skin found that ethylhexyl palmitate at concentrations up to 50% can cause mild irritation, while moisturizing creams with cetyl palmitate at concentrations up to 2.7% were minimally irritating and showed no signs of sensitization or phototoxicity. Isopropyl palmitate, even when used undiluted, showed minimal irritation and was rated as a low potential sensitizer of the lowest grade. The panel concluded that ethylhexyl palmitate, cetyl palmitate, and isopropyl palmitate are safe for use in cosmetics, provided that the fatty acids and alcohols used in their production are not of animal origin, in accordance with European regulations. These ingredients can be used in various cosmetic products, such as creams, lotions, lip balms, makeup, and hair care products, while adhering to safety guidelines.

Applications: Widely used in the production of decorative cosmetics. It is used in the manufacture of hair care products, lotions, creams, moisturizers, and facial cleansers.

Source Raw Materials: Vegetable oils

Method of Obtaining: Produced by reacting cetyl alcohol with palmitic acid.

Animal Testing: The substance has not been tested on animals

GMO: Non-GMO

Vegan: Does not contain animal-derived components

Country of Origin: Italy

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