Avena Lab
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Product Name: Isopropyl Palmitate

INCI Name: Isopropyl Palmitate

CAS: 142-91-6

Synonyms: 1-Methylethyl hexadecanoate; Isopropyl Ester Palmitic Acid; Deltyl; Deltyl Prime; Exceparl IPP; Isopal; Isopalm; Isopropyl hexadecanoate; NSC 69169; Neoderm IPP; Nikkol IPP; Propal; Palmitic acid, isopropyl ester; Hexadecanoic acid, isopropyl ester

Chemical Classification: Ester

Functional Category: Skin conditioning agent, emollient, solvent for fragrance oils

IUPAC Name: Propan-2-yl hexadecanoate

Chemical-Physical Properties: Isopropyl palmitate is an ester of palmitic acid and isopropyl alcohol. Palmitic acid is a saturated fatty acid with a long chain of 16 carbon atoms, and isopropyl alcohol is a simple alcohol with three carbon atoms, where the hydroxyl group (-OH) is attached to the secondary carbon atom (the second carbon atom in the chain). The ester group in isopropyl palmitate plays a key role in determining its physical-chemical properties. It contributes to the low viscosity of isopropyl palmitate, making it a good solvent and emollient. Isopropyl palmitate is a colorless to pale yellow liquid with a faint odor. At room temperature, it is a liquid and has no precise melting point, while its boiling point is around 350°C (662°F) at atmospheric pressure. Its density is about 0.85 g/cm³ at 20°C, making it easily spreadable on the skin. Its refractive index is around 1.44 at 20°C. Isopropyl palmitate is practically insoluble in water but completely soluble in oils. It is also soluble in alcohols such as ethanol and isopropyl alcohol and dissolves well in many organic solvents like acetone, benzene, and chloroform. These characteristics make it ideal for use in cosmetic and pharmaceutical products.

Effects on Skin and Benefits:

- ***Emollient:*** Isopropyl palmitate acts as an emollient, hydrating the skin and reducing water loss from the epidermis. This results in softer and smoother skin,

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improving its overall appearance and feel.

• ***Improves Product Texture:*** Adding isopropyl palmitate to cosmetic formulations gives products a lighter and more pleasant texture. This is particularly important for products like creams and lotions, as it allows for smooth application and quick absorption without a greasy residue.

• ***Solvent:*** Isopropyl palmitate is used as a solvent for active ingredients, allowing their even distribution in products. This enhances the efficacy of formulations by ensuring that active ingredients are properly dispersed and available for absorption.

• ***Increases Penetration:*** It can help increase the penetration of other active ingredients through the skin, thereby enhancing product effectiveness. This is especially useful in skin treatments that require deeper penetration of ingredients to be effective.

• ***Non-Comedogenic:*** Although some esters are known to cause acne and clog pores, isopropyl palmitate is generally safe for use on most skin types, including oily and acne-prone skin. Its use helps avoid pore-clogging issues and does not lead to acne formation.

• ***Formulation Stability:*** Isopropyl palmitate helps stabilize cosmetic formulations, preventing ingredient separation and extending the shelf life of products.

Applications: Used in the production of face and body care products. It is a common ingredient in baby care products and sunscreen cosmetics. Approved by the FDA and considered a completely safe substance for use in cosmetics. It is typically added to formulations at concentrations between 3-20%.

(EU) Safety Information: Ethylhexyl, cetyl, and isopropyl palmitate can be used in cosmetics and personal care products sold in Europe in accordance with the general provisions of the European Union Cosmetics Directive, provided that the fatty acids and fatty alcohols are not of animal origin. Raw materials of animal origin must comply with the European Union regulations on animal by-products.

(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 avail-

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able 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 Expert Panel for Cosmetic Ingredient Safety reviewed the available scientific data and concluded that isopropyl palmitate, ethylhexyl palmitate, and cetyl palmitate are safe for use as cosmetic ingredients. In 2001, the panel reconsidered the latest available data on these ingredients and confirmed their previous conclusion. The panel examined studies of acute and subchronic dermal toxicity with palmitates and found no evidence of toxicity. Eye irritation tests with palmitates showed very mild or no irritation. Tests on human skin with palmitates and products containing them were also reviewed. One of three products containing 40%-50% ethylhexyl palmitate caused mild irritation. Moisturizing creams containing 2.5%-2.7% cetyl palmitate were minimally irritating and showed no signs of sensitization, phototoxicity, or photo-contact allergenicity. Undiluted isopropyl palmitate was minimally irritating and reported as a "weak potential sensitizer" of the lowest grade. A bath product containing 45.6% isopropyl palmitate caused no signs of irritation, sensitization, phototoxicity, or photo-contact allergenicity. The panel noted that ethylhexyl palmitate had not been tested at concentrations above 50% for skin irritation and that no data were available on sensitization or phototoxicity for this ingredient. Clinical data on cetyl palmitate were limited to concentrations up to 2.7%. Based on the available data, the panel concluded that ethylhexyl palmitate, cetyl palmitate, and isopropyl palmitate are safe as cosmetic ingredients.

Animal Testing: The substance has not been tested on animals.

GMO: Non-GMO

Vegan: Does not contain animal-derived components