Import and distribution for Serbia: Farmadria DOO
info@avenalab.com
+381 (0) 69 / 55 65 029
www.avenalab.com

TECHNICAL DATA SHEET

Product Name: Vitamin A Retinol Powder (encapsulated)

INCI Name: Retinol, Hydroxypropyl Cyclodextrin

CAS: 68-26-8, 128446-35-5

Chemical Classification: Mixture

Functional Category: Skin Conditioning Agent - Miscellaneous; Emulsion Stabilizers; Chelating Agent / Sequestrant

Description: Vitamin A (retinol) in its pure form is highly unstable as a cosmetic ingredient. It is prone to degradation in the presence of oxygen, light, and heat. To produce a stable form of Vitamin A, modern encapsulation technology is used with hydroxypropyl cyclodextrin. Retinol is encapsulated within hydroxypropyl cyclodextrin (HP-β-CD), which acts as a carrier. Hydroxypropyl cyclodextrin is a cyclic oligosaccharide that has the ability to form inclusive complexes with various molecules, thereby improving their stability and solubility. Encapsulation allows for the controlled release of retinol from the complex, enabling gradual release on the skin, which reduces the risk of irritation and allows for its more effective action over a longer period. Encapsulation protects retinol from external degradation factors, preserving its stability and efficacy. By using HP-β-CD as a carrier, the bioavailability of retinol is improved, meaning that a greater amount of the active ingredient can be absorbed through the skin and utilized for desired effects, such as anti-aging, anti-acne, and many other beneficial effects. The powder is light yellow to yellowish in color, reflecting the characteristic color of retinol. The retinol content ranges from 310,000 to 330,000 IU/g. The mixture has improved solubility in water and organic solvents compared to pure retinol, thanks to the presence of hydroxypropyl cyclodextrin. The mixture is compatible with a wide range of pH values but is best used within a mildly acidic to neutral pH range (pH 5.0-7.0).

Benefits:

- ***Anti-Aging:*** Retinol acts on fibroblasts, the cells responsible for collagen production, by stimulating their activity. Increased collagen production helps fill in and smooth out fine lines and wrinkles, making the skin firmer and more elastic.
By reducing collagen degradation, retinol slows down the aging process of the skin.

Avena Lab
Farmadria d.o.o. Since 1991.

Import and distribution for Serbia: Farmadria DOO
info@avenalab.com
+381 (0) 69 / 55 65 029
www.avenalab.com

TECHNICAL DATA SHEET

• ***Skin Texture Improvement:*** Retinol accelerates the skin cell renewal process, encouraging the shedding of dead skin cells from the surface and replacement with new, healthier cells. This not only improves the texture and tone of the skin but also reduces the appearance of pigmentation spots and uneven skin color.

• ***Acne Treatment:*** Retinol helps regulate sebum production, which can be beneficial in the prevention and treatment of acne, conditions that can contribute to premature skin aging.

• ***Antioxidant Action:*** Retinol possesses antioxidant properties that help combat free radicals, unstable molecules that can damage skin cells and accelerate the aging process. By reducing damage caused by free radicals, retinol helps preserve the youthfulness of the skin.

• ***Improvement of Skin Barrier Function:*** Helps strengthen the skin's barrier function, reducing moisture loss and increasing skin hydration. This leads to healthier, more hydrated skin that better resists external factors that can cause aging. Hydroxypropyl Cyclodextrin also has the ability to retain moisture, contributing to improved skin hydration and reduced dryness.

Usage Instructions: The concentrations of retinol in commercial products usually range from 0.01% to 1%, depending on the desired intensity of action and skin tolerance. The maximum doses recommended by the manufacturer range from 5 to 10%. Retinol powder should be properly dissolved in an appropriate solvent before being added to the cosmetic base. The oil phase of the formulation is typically used for dissolving retinol, as it is a lipophilic substance. Once the retinol is dissolved, it can be added to the cosmetic base. It is important to ensure that the cosmetic base is compatible with retinol and that there will be no undesirable reactions that could affect the stability or safety of the product. The pH value of the finished formulation can affect the stability of retinol. It is recommended that the pH value of the final product be mildly acidic to neutral, to optimize the stability of retinol. Using opaque or dark packaging that protects the product from light is crucial for preserving the efficacy of retinol over time. Before launching the product on the market, it is recommended to conduct stability and safety testing, including testing for microbiological contamination, pH value, and the efficacy of retinol after a certain storage period. It is important to inform users about the proper way to use products with retinol, including recommendations for gradually introducing the product into the skin care routine and warning about the potential increased sensitivity to the sun. Using SPF protection during the day is essential because retinol increases skin sensitivity to UV radiation. Using retinol powder in cosmetic

Import and distribution for Serbia: Farmadria DOO
info@avenalab.com
+381 (0) 69 / 55 65 029
www.avenalab.com

TECHNICAL DATA SHEET

formulations requires careful handling and precision in formulation to ensure its maximum efficacy and safety for users.

Application: Retinol is used for making anti-aging products, anti-wrinkle creams and serums, night creams where it promotes skin regeneration while you sleep, products for acne and scar treatment by stimulating skin renewal, products for correcting skin tone and texture including dark spots and melasma, exfoliating products, and moisturizing creams. It is also used for specific treatments, such as products for the eye area, neck, and décolleté products.

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

GMO: Non-GMO.

Vegan: Does not contain animal-derived components.