Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Ultra low molecular weight hydrolyzed collagen, 1 kDa

INCI: Hydrolyzed Collagen

CAS: 92113-31-0

Chemical classification: Mixture

Functional category: Nail conditioning agent, hair conditioning agent, skin conditioning agent – other, pH-adjusting agent and buffer component

Description: Collagen Protein Powder, 1 kDa (also known as Marine Collagen Protein) is a hydrolyzed marine collagen obtained by controlled enzymatic hydrolysis of collagen isolated from marine fish, resulting in a very low molecular weight of approximately 1 kDa. This degree of hydrolysis yields short peptide chains with high biocompatibility with the skin and pronounced functional properties in cosmetic formulations. The structure of these peptides allows uniform dispersion in aqueous and emulsion systems without compromising formulation stability. In cosmetic use, Collagen Protein Powder, 1 kDa primarily acts as an effective moisturizing and film-forming ingredient. On the skin surface it forms a thin, elastic and non-occlusive film that reduces transepidermal water loss and contributes to a feeling of smoothness and tightness. Due to its extremely low molecular weight, the peptides display a high binding affinity for the stratum corneum, providing a more pronounced and longer-lasting hydration effect compared with higher molecular weight collagens. The functional effect of this ingredient is reflected in the improvement of the visual appearance of the skin. Although hydrolyzed collagen does not directly participate in the reconstruction of the dermal collagen matrix, its presence contributes to the stabilization of the skin's hydration balance. In this way, it indirectly supports natural regeneration processes, and the skin appears plumper, softer and more even in texture after use. Collagen Protein Powder, 1 kDa is characterized by excellent water solubility and stability over a wide pH range, which allows its incorporation into serums, gels, emulsions and formulations intended for sensitive regions, such as the area around the eyes. It does not clog pores and shows good compatibility with common cosmetic actives, including humectants, botanical extracts and mild peptides.

Mode of action: The mode of action of Collagen Protein Powder, 1 kDa is based on its physicochemical interaction with the outer layers of the skin and the ability of short

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peptide chains to form a stable hydrating microfilm. After application, hydrolyzed collagen is adsorbed onto the stratum corneum, where the peptides, due to their low molecular weight, distribute evenly and bind to keratin structures via hydrogen bonds. The resulting film is thin, elastic and non-occlusive, which allows a reduction in transepidermal water loss without disturbing the skin's natural gas exchange. This leads to a rapid increase in surface hydration and improvement of the mechanical properties of the skin, including elasticity and a perceivable tightening effect. This effect is predominantly superficial, but stable and reproducible with regular use.
At the same time, the presence of low molecular weight collagen peptides helps stabilize the hydration environment of the epidermis. This indirectly optimizes the conditions for physiological processes involved in restoring barrier function. Although collagen peptides do not penetrate as far as the dermis in a way that would structurally replace collagen, their biofunctional role lies in improving the cohesion of the stratum corneum and evening out skin texture. Owing to its high skin compatibility, Collagen Protein Powder, 1 kDa acts synergistically with other humectants and active ingredients in the formulation, enabling more uniform hydration and prolonged moisture retention in the superficial skin layers, without irritation and without clogging pores.

Benefits:

- Improves surface hydration of the skin by reducing water loss and maintaining an optimal moisture level.
- Contributes to a feeling of smoothness and firmness by forming a thin, elastic protective film.
- Enhances skin softness and elasticity by stabilizing the hydration balance of the epidermis.
- Improves the visual appearance of the skin, making the texture more even and plumper.
- Conditions the hair, increasing softness, manageability and ease of combing.
- Supports better compatibility and performance of other active ingredients within the formulation.

Usage: Collagen Protein Powder, 1 kDa is added to formulations in the water phase or during the cold-process phase, after complete dissolution in deionized water. Dissolution is carried out under gentle stirring, without the need for heating, thus preserving the functional properties of the short peptide chains. The resulting solution is easily

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incorporated into gels, serums and emulsions without adverse effects on system stability. In light moisturizing serums and aqueous gels it is typically used at 0.1–1%, providing a rapid hydrating effect and improving skin texture. In creams and emulsions for daily care, it is most often used at 0.2–2%, contributing to longer-lasting hydration and a pleasant sensation of smoothness. In formulations intended for sensitive regions, such as the area around the eyes, it is used at lower levels, usually 0.1–0.5%, to achieve a gentle yet effective conditioning effect. In haircare products such as conditioners, masks and leave-in formulations, Collagen Protein Powder, 1 kDa is used at 0.2–1%, where it improves hair softness and facilitates detangling. In nail-care products it is applied at 0.5–2%, with the aim of improving flexibility and conditioning the nail plate.

Natural or synthetic ingredient: Collagen Protein Powder, 1 kDa is considered a naturally derived ingredient, as it originates from natural collagen isolated from marine fish. Although it undergoes a controlled enzymatic hydrolysis process, which represents a technological treatment, the starting material is of biological origin and the resulting peptides retain their protein nature. For this reason, it is not classified as a synthetic ingredient, but as a natural protein derivative obtained by technological processing.

Animal testing: In accordance with Regulation (EC) No. 1223/2009 on cosmetic products, the substance has not been tested on animals. The safety assessment is based on available toxicological data, scientific literature and validated alternative testing methods (in vitro and in silico). “In silico” refers to testing and assessment methods performed using computer models and simulations rather than on live organisms (in vivo) or cell cultures (in vitro). This statement confirms compliance with the animal-testing ban and serves solely as information for further use of the raw material in cosmetic formulations.

GMO: Not GMO

Transport and storage: The protein can be transported at temperatures between 20 °C and 25 °C without significant impact on its quality, as it remains stable over shorter periods under these conditions. However, for long-term preservation of bioactivity and structural integrity, storage in a refrigerator at 4–8 °C is recommended. Lower temperatures slow down protein degradation processes, reduce the risk of oxidation and loss of efficacy, and thus extend shelf life while preserving functional properties in cosmetic formulations. Cooling also reduces the likelihood of microbiological contamination and