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info@avenalab.com
+381 (0) 69 / 55 65 029
www.avenalab.com

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Product Name: Hydrolyzed Milk Proteins

INCI name: Water, Hydrolyzed Milk Protein, Pentylene Glycol, (+)-Arabinogalactan, 3-O-Ethyl Ascorbic Acid, Benzyl Alcohol, Potassium Sorbate, Sodium Benzoate

CAS: 7732-18-5, 92797-39-2, 5343-92-0, 9036-66-2, 86404-04-8, 100-51-6, 24634-61-5, 532-32-1

Chemical classification: Proteins/derivatives

Functional category: Conditioner for skin and hair care. Creates a flexible, cohesive, and continuous film on the skin and hair.

Description: Hydrolyzed milk protein is a form of milk protein subjected to the hydrolysis process, during which large protein molecules are broken down into smaller peptides and amino acids. This procedure enables easier absorption and better penetration into the skin, making them extremely effective ingredients in cosmetic products. As a source of essential amino acids, hydrolyzed milk proteins provide strong hydration and encourage the regeneration of damaged proteins in the skin. They strengthen the skin barrier, helping retain moisture, preventing water loss, and thus improving the skin's elasticity and softness. The presence of these smaller peptides allows the ingredient to penetrate deeper into the epidermis, where it can stimulate the production of collagen and elastin, two key proteins responsible for the skin's firmness and youthful appearance. In addition to moisturizing properties, hydrolyzed milk protein is known for its ability to soothe the skin. Thanks to its anti-inflammatory properties, it can reduce redness, irritation, and sensitivity, making it suitable for use in products intended for sensitive or reactive skin. Also, the presence of bioactive peptides can help protect the skin from harmful environmental factors such as pollution and free radicals. This ingredient is often used in hair care formulations because of its ability to improve the structure of the hair shaft. Hydrolyzed milk proteins help repair damaged keratin fibers, giving the hair extra strength, elasticity, and shine. They form a protective film around the hair shaft, reducing the risk of further damage caused by styling, UV radiation, or chemical treatments. Thanks to its versatility, hydrolyzed milk protein is a frequent component in many cosmetic formulations, including creams, serums, face masks, as well as hair care products. Its natural ability to nourish, strengthen, and protect makes it a valuable addition to everyday skin and hair care. It can be mixed in any proportion with water and

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is compatible with surfactants, electrolytes, and cationic polymers. It is preserved with benzyl alcohol, sodium benzoate, and potassium sorbate.

Benefits:

- They hydrate the skin, helping it remain moist and elastic.
- They strengthen the skin barrier, reducing transepidermal water loss.
- They encourage the regeneration of damaged proteins in the skin, contributing to its recovery.
- They penetrate deep into the epidermis and stimulate collagen and elastin production.
- They soothe the skin by reducing redness, irritation, and sensitivity.
- They protect the skin from harmful environmental influences like pollution and free radicals.
- They help restore damaged keratin fibers in the hair, giving it strength, elasticity, and shine.
- They form a protective film around the hair shaft, reducing the risk of further damage from external factors.
- They successfully smooth the hair for easier detangling.
- They remove dark circles around the eyes ("anti-dark circles" agent).

Method of use: In skin care formulations, such as creams, serums, masks, and lotions, hydrolyzed milk proteins are generally used at concentrations from 1% to 5%. At these concentrations, they help bind moisture in the skin, strengthen the skin barrier, and improve the skin's elasticity. Given their soothing and regenerative properties, they are ideal for products intended for dry, sensitive, or mature skin. In hair care products, such as shampoos, conditioners, masks, and hair treatments, hydrolyzed milk proteins are often used at slightly higher concentrations, usually between 0.5% and 10%. Lower concentrations, up to about 2%, provide basic protection and hydration of the hair, while higher concentrations, between 3% and 10%, offer more intensive treatment that helps restore damaged hair, strengthen the hair structure, and add shine. In hair formulations, hydrolyzed proteins also create a protective film that shields the hair from negative external factors such as heat, pollution, and UV radiation. The process of incorporating hydrolyzed milk proteins into cosmetic formulations requires attention regarding temperature and pH values during production. They are usually added in the cooling phase of the formula (at temperatures below 40°C) to preserve their delicate structure

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and functionality. Excessive heating can degrade proteins, reducing their effectiveness and functional properties. It is desirable to maintain the pH of the formulation in the neutral or slightly acidic range (between 4.5 and 6.5) to maximize the stability and activity of the proteins. In sensory evaluations, they proved to be an excellent alternative to animal keratin. Due to their versatility, they are often used in combination with hyaluronic acid, collagen, plant extracts, and ceramides to enhance the overall effectiveness of the product. Proper balancing of these ingredients allows the creation of products that not only hydrate and protect but also help improve the long-term health and appearance of the skin and hair.

Source of raw materials from which it is obtained: Cow's milk

Method of obtaining: The product is obtained by enzymatic hydrolysis of milk casein.

Transport and storage: Hydrolyzed milk protein can be transported at room temperature, between 20°C and 25°C, without significantly affecting its quality, as it is stable for a shorter period under such conditions. However, for long-term preservation of its bioactivity and integrity, storage in a refrigerator at a temperature between 4°C and 8°C is recommended. Low temperatures help prevent protein degradation, oxidation, or efficiency loss, which prolongs its shelf life and preserves its functional properties in formulations. Cooling also reduces the risk of microbiological contamination or undesirable changes in the texture and quality of the ingredient.