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Product name: Beta Glucan

INCI name: Water, Glycerin, 1,2-Hexanediol, Pentylene Glycol, Phenoxyethanol, Xanthan Gum, Beta-Glucan, Ethylhexylglycerin

CAS: 7732-18-5, 56-81-5, 6920-22-5, 5343-92-0, 122-99-6, 11138-66-2, 1439905-58-4, 70445-33-9

Functional category: Skin and hair conditioning agent; Humectant

Chemical classification: Polysaccharide water-glycol suspension.

Structural formula: β-Glucans (beta-glucans) are polysaccharides composed of D-glucose monomers linked by β-glycosidic bonds.

Description: Beta-glucan is a natural polysaccharide widely used in cosmetic products due to its exceptional moisturizing and soothing properties. In cosmetics, beta-glucan acts as an effective antioxidant, helping to protect the skin from harmful external influences and free radicals. It also helps reduce redness and irritation, making it particularly suitable for products intended for sensitive or problematic skin. Its ability to penetrate deeply into the skin and stimulate collagen production contributes to improved skin elasticity and firmness, leaving the skin smooth and radiant. pH: 6–8.

Physicochemical properties: Beta-glucan in its native form is insoluble or only slightly soluble in water. In cold water, it is practically insoluble and forms a suspension with visible particles, while in warm water, within a temperature range of 60 to 90 °C, the polysaccharide network swells and partially disperses, but without completely forming a true solution. As a result, a cloudy colloidal system is obtained rather than a clear solution. A beta-glucan suspension in water is not microbiologically stable on its own and is susceptible to spoilage if not adequately preserved. As a polysaccharide, beta-glucan represents a potential carbon source for microorganisms, and therefore bacterial, yeast, and mold growth may occur in aqueous systems, especially at room temperature. The risk is further increased if the raw material contains traces of proteins or other organic substances, which is common in extracts derived from mushrooms. A suspension without a preservation system, even when prepared with demineralized water, is not stable over long periods and may relatively quickly show signs of deterioration such as odor changes, increased turbidity, gas

formation, or pH shifts. For cosmetic applications, the incorporation of an appropriate preservative system is essential, for example phenoxyethanol at concentrations of 0.5–1%, together with pH control within the range of 4.5–6, in order to ensure microbiological safety and formulation stability throughout the intended shelf life.

Benefits:

Acts as a humectant by attracting and retaining moisture, helping to hydrate the skin and prevent dryness.

Neutralizes free radicals and protects collagen and structural skin tissues from damage.

Stimulates collagen production, improving skin elasticity and firmness while reducing the appearance of wrinkles.

Supports the regeneration of damaged skin and accelerates the natural healing process.

Strengthens the skin's immune response, increasing its resistance to external stressors.

Provides a certain level of protection against UV radiation and helps reduce damage caused by sun exposure.

Directions for use: Shake the suspension thoroughly before use. In creams and lotions for daily skin care, a beta-glucan concentration of 0.1% to 3% is recommended to provide optimal hydration and skin protection. In products intended to soothe irritated or damaged skin, such as serums or balms, the concentration may be slightly higher, reaching up to 5%, in order to promote regeneration and reduce inflammation. In anti-aging formulations, beta-glucan is commonly used at concentrations between 1% and 5%, as it helps stimulate fibroblasts and collagen production, contributing to improved skin elasticity and firmness. When used in face masks, concentrations of up to 5% may be applied to provide intensive hydration and a soothing effect, particularly after exfoliation treatments or exposure to environmental stressors. Beta-glucan combines easily with other ingredients such as hyaluronic acid, vitamin C, and ceramides, enhancing its effectiveness in moisturizing and regenerative

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formulations. Regardless of the product type, it is recommended not to use beta-glucan at excessively high concentrations, as even small amounts can provide significant skin benefits. For external use only.

Application safety: In its 2019 report, the CIR (Cosmetic Ingredient Review) concluded that beta-glucan is safe for use in cosmetic products. Following a comprehensive evaluation of scientific data, the CIR panel determined that beta-glucan does not cause skin irritation or allergic reactions, even when used at higher concentrations. It was also confirmed that there is no evidence of toxicity or adverse skin effects under normal cosmetic use conditions. The report emphasizes that, due to its natural origin and gentle properties, beta-glucan is suitable for use in skincare products, including those intended for sensitive skin. Recommended concentrations for cosmetic use vary depending on the product type and generally range from 0.1% to 5%.

Source raw material: Mushrooms – Lion's Mane Mushroom (Hericium erinaceus). Beta-glucan is extracted and purified from mushrooms. Due to these structural characteristics, beta-glucans in their native form are predominantly insoluble or only slightly soluble in water.

Animal testing: In accordance with current European regulations (Regulation (EC) No. 1223/2009 on cosmetic products), this substance has not been tested on animals. The safety assessment of the raw material is based on available toxicological data, scientific literature, and validated alternative testing methods (in vitro and in silico). The term "in silico" refers to testing and assessment methods carried out using computer models and simulations rather than on living organisms (in vivo) or cell cultures (in vitro). This statement confirms compliance with the ban on animal testing and is provided solely for informational purposes regarding the further use of the raw material in cosmetic formulations.

GMO: Non-GMO

Vegan: Does not contain ingredients of animal origin.

Origin of raw material: China