Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Allantoin

INCI Name: Allantoin

CAS: 97-59-6

Synonyms: (2,5-dioxo-4-imidazolidinyl) urea

Chemical Classification: Heterocyclic compound

Functional Category: Skin conditioning agent; skin protectant

IUPAC Name: (2,5-Dioxo-4-imidazolidinyl) urea

Description: Allantoin is a derivative of uric acid. It is naturally found in wheat germ, tobacco seeds, sugar beets. It is present in comfrey plant extract and snail mucus. White crystals or white crystalline powder. Melting point: 230-234 °C (sublimates). Water solubility: 0.5 g/L at 25 °C. It becomes less soluble if present in concentrations above 0.5%. Poorly soluble in alcohol. Soluble in glycerin and propylene glycol. Neutral pH, around 5-7 in aqueous solution. Stable under normal storage conditions, but can degrade in light or at elevated temperatures. Purity: 99-100%.

Mechanism of Action on the Skin: Fibroblasts are cells in the dermis (middle layer of the skin) responsible for producing collagen and other components of the extracellular matrix. Allantoin stimulates fibroblast activity, increasing their proliferation and functionality. This results in increased production of collagen, elastin, and other structural proteins that contribute to the skin's firmness and elasticity. Allantoin has antioxidant properties that help neutralize free radicals. Free radicals can damage skin cells and reduce the efficiency of collagen synthesis. By reducing oxidative stress, allantoin protects fibroblasts and other skin cells, enabling them to produce collagen more effectively. Allantoin improves skin hydration, which is crucial for the optimal function of skin cells. Good hydration allows fibroblasts to efficiently produce collagen and other components of the extracellular matrix. Allantoin reduces inflammation in the skin, which can have an indirect positive effect on collagen synthesis. Inflammatory processes can damage skin cells and reduce collagen production. By reducing inflammation, allantoin creates more favorable conditions for fibroblasts to function optimally and

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produce collagen. Allantoin can directly stimulate the expression of genes associated with collagen synthesis and other matrix proteins. This may include increasing mRNA levels for collagen, leading to increased production of collagen fibers.

Benefits:

• ***Hydration:*** Allantoin acts as a humectant, attracting moisture from the environment and retaining it in the skin. This improves skin elasticity, prevents dryness, and makes the skin softer and smoother. Hydration is essential for healthy-looking skin, as a lack of moisture can lead to dryness, flaking, and increased sensitivity.

• ***Soothing Effect:*** Allantoin reduces redness and irritation caused by external factors such as harmful UV radiation, wind, chemical irritants, and cosmetic treatments. This property makes allantoin ideal for sensitive skin and products used after treatments like shaving, depilation, or sun exposure.

• ***Skin Regeneration:*** Allantoin stimulates skin cell regeneration, accelerating the process of repairing damaged tissues. It promotes the proliferation of keratinocytes, the basic cells of the epidermis, and collagen synthesis, a key protein for skin structure. This contributes to faster wound healing, scar reduction, and overall skin appearance improvement.

• ***Exfoliation:*** Allantoin acts as a mild keratolytic agent, helping to remove dead cells from the skin's surface. This not only improves skin texture, making it smoother, but also allows better absorption of other active ingredients from cosmetic products. Regular exfoliation helps prevent clogged pores and acne formation.

• ***Anti-inflammatory Effect:*** Allantoin reduces inflammatory processes in the skin by acting on inflammatory mediators such as cytokines. This can help reduce inflammation associated with conditions like acne, eczema, and psoriasis.

• ***Protective Barrier:*** Allantoin creates a protective layer on the skin's surface, shielding it from harmful external influences such as pollution, UV radiation, and extreme weather conditions. This protective layer helps prevent further damage and irritation, keeping the skin healthy and more resistant to external factors.

• ***Improving Skin Texture:*** Regular use of products with allantoin can significantly improve the overall texture of the skin. The skin becomes softer, smoother, and healthier-looking. Allantoin helps reduce roughness and irregularities, making the skin more uniform.

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Usage: Add to the aqueous phase of the formulation or into the finished emulsion. If added at high temperatures and followed by rapid cooling, it can form crystals. As a skin protectant and conditioning agent, it is used in concentrations of 0.5% to 2%.
For external use only.

Applications: Allantoin is safe for use on all skin types, including sensitive and problematic skin. It is found in various products such as creams and lotions (for hydration and soothing), serums and toners (for regeneration and exfoliation), lip balms (for hydration and protection), sun care products (to reduce irritation and accelerate healing after sun exposure), and baby care products (to reduce rash and irritation on sensitive baby skin).

Source Materials: Glyoxylic acid and urea.

Production Method: Synthesized by direct condensation of glyoxylic acid and urea.

Animal Testing: The substance is not tested on animals.

GMO: Non-GMO.

Vegan: Does not contain animal-derived components.