Import and distribution for Serbia: Farmadria DOO
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TECHNICAL DATA SHEET

Product Name: Tripeptide-1 GHK

INCI Name: Water, Glycerin, Tripeptide 1, Caprylyl Glycol, Ethylhexylglycerin

CAS: 7732-18-5, 56-81-5, 72957-37-0, 1117-86-8, 70445-33-9

Sequence: Gly-His-Lys.CH3CO2H

Synonyms: Tripeptide-1 Acetate; L-Lysine, glycyl-L-histidyl- monoacetate; L-Lysine, N2-(N-glycyl-L-histidyl)-, monoacetate; Glycyl-L-histidyl-L-lysine acetate; Gly-His-Lys-OH

Chemical Classification: Mixture

Functional Category: Skin and hair care conditioner.

IUPAC Name: acetic acid;(2S)-6-amino-2-[[(2S)-2-[(2-aminoacetyl)amino]-3-(1H-imidazol-5-yl)propanoyl]amino]hexanoic acid

Source: USA

Description: Tripeptide-1 is a small peptide composed of three amino acids: glycine, histidine, and lysine. The peptide bond linking these three amino acids in tripeptide-1 is a covalent bond formed between the carboxyl group of one amino acid and the amino group of another amino acid. This bond is formed through a process called condensation, where a molecule of water is released. When all three amino acids are connected by a peptide bond, a chain of tripeptide-1 is formed. This chain has its unique chemical structure that determines its characteristics and functions in biological systems, such as its ability to interact with other molecules and transmit signals within skin cells. Tripeptide-1 represents a fragment of collagen type I and belongs to the group of "signaling peptides." It is believed that peptides from collagen fragments stimulate collagen production. The Tripeptide 1 mixture is a transparent pale yellowish liquid. The concentration of tripeptide 1 is 1000 ppm (0.1%). The pH of the solution is 4.0 -7.0.

Effects on the skin and benefits:

- ***Stimulation of collagen synthesis:*** Tripeptide-1 can interact with specific recep-

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tors on the surface of skin cells. When it binds to these receptors, intracellular signaling pathways within the cells are activated. Signaling pathways are complex sets of molecular interactions within cells that allow the transmission of information from the external environment to the interior of the cell. These pathways play a crucial role in regulating various biological processes, including growth, development, response to external stimuli, and maintenance of homeostasis (internal balance). These signaling pathways can lead to the activation of certain genes in the nucleus of skin cells that encode proteins necessary for collagen synthesis. Increased collagen synthesis contributes to strengthening and improving the structure of the skin, making it firmer, more elastic, and less prone to wrinkles and sagging. Collagen fibers in the extracellular matrix can interact with other components, such as elastin, proteoglycans, and other proteins, contributing to the structural and functional integrity of tissues.

• ***Skin regeneration:*** In addition to stimulating collagen synthesis, tripeptide-1 can affect skin renewal processes at the molecular level. It accelerates the regeneration of skin cells, increases the proliferation of keratinocytes (skin cells), and improves the skin's barrier function. Tripeptide-1 can help improve the skin's ability to retain moisture.

• ***Antioxidant activity:*** Some studies suggest that tripeptide-1 may have antioxidant properties, meaning it can help neutralize free radicals and reduce oxidative stress in the skin. Oxidative stress can contribute to skin damage and premature aging, so the antioxidant activity of tripeptide-1 contributes to preserving the health and youthful appearance of the skin.

• ***Reduction of inflammation:*** Tripeptide-1 can inhibit the production of pro-inflammatory cytokines such as interleukins and tumor necrosis factor-alpha (TNF-alpha). Tripeptide-1 can activate pathways within cells that are responsible for inhibiting inflammation. This includes the activation of anti-inflammatory proteins such as interleukin-10 (IL-10) and other factors that block inflammatory processes. Tripeptide-1 can affect intracellular signaling pathways that regulate inflammation. It inhibits key regulators of inflammation in skin cells: NF-kB and MAPK. It can also modulate the immune response by reducing the activity of immune cells involved in the inflammatory response, such as macrophages and neutrophils.

Use in cosmetic products: The ingredient is found in numerous "anti-aging" cosmetic products that hydrate the skin and can also be found in products that reduce the appearance of dark spots. It is added to the water phase of the formulation at a temperature below 40°C. It is used in concentrations ranging from 1 to 10%.

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

GMO: Not GMO

Vegan: Does not contain components of animal origin

Storage: Store in the refrigerator at a temperature between 4 and 8°C.