Import and distribution for Serbia: Farmadria DOO
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Product Name: Dipeptide-2

INCI Name: Water, Glycerin, Dipeptide-2, Phenoxyethanol

CAS: 7732-18-5, 56-81-5, 24587-37-9, 122-99-6

Synonyms: L-Valyl-L-Tryptophan; H-VAL-TRP-OH; VAL-TRP; N-valyltryptophan; L-Valyl-L-tyrosine; Dipeptide Val-Try

Chemical Classification: Mixture

Functional Category: Skin Conditioning Agent

Sequence: H-Val-Trp-OH

IUPAC Name: (2S)-2-[[(2S)-2-amino-3-methylbutanoyl]amino]-3-(1H-indol-3-yl)propanoic acid

Physico-Chemical Properties: Dipeptide-2 is a synthetic peptide consisting of two amino acids (tryptophan and valine) connected by a peptide bond. The peptide bond between these two amino acids is formed by dehydration (loss of a water molecule) between the carboxyl group of one amino acid and the amino group of the other amino acid. Peptide bonds link amino acids into a linear chain, forming the peptide structure. They also allow for bending and forming secondary structures such as alpha-helices and beta-sheets. The side chains of the amino acids determine the specific properties and functions of the peptide. For example, hydrophilic side chains increase the solubility of this peptide in water, while hydrophobic side chains contribute to the formation of internal structures of proteins. Side chains also participate in interactions with other molecules, which is crucial for the biological activity of the peptide. Functional groups enable the peptide to interact with biological molecules and cells, resulting in various effects such as enzyme inhibition, improved lymph circulation, and reduced edema and dark circles. Thanks to its small molecular weight, dipeptide-2 easily penetrates deeper skin layers. The water-glycerin mixture is a clear, transparent liquid without odor. Peptide content is 1000 ppm. The mixture is stable at pH values common for cosmetic products. The optimal pH range for stability and effectiveness is between 4 and 7.

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Effects on Skin: Dipeptide-2 belongs to the group of so-called "anti-dark circles" agents. It has the ability to reduce or completely eliminate the appearance of dark circles around the eyes. Dark circles are usually characterized by dark discoloration, puffiness, and pigmentation under the eyes, which can be pronounced separately or combined. Dark circles mostly occur due to poor circulation, slow metabolism, skin structure, and pigmentation. Additionally, dipeptide-2 is part of a complex of 3 active substances known as Eieliss (with HMC and Palmitoyl Tetrapeptide-7). This complex has proven effective in combating dark circles and puffiness around the eyes. Dipeptide-2 in Eieliss increases lymph circulation and, together with the other two active principles, represents a "global approach" to treating puffy eyes.

Benefits:

• ***Lymph Drainage:*** The lymphatic system is a network of vessels and lymph nodes that transport lymph – a clear fluid containing white blood cells, waste products, toxins, and excess tissue fluid. The lymphatic system plays a key role in fluid balance in the body and waste removal. Dipeptide-2 can stimulate the contraction of smooth muscles within the walls of lymph vessels. This contraction helps push lymph through the lymph vessels toward the lymph nodes, where it is filtered and purified. Improved lymph drainage can also aid immune function by enabling more efficient transport and elimination of bacteria, viruses, and other pathogens from the body. More efficient lymph drainage contributes to the removal of toxins from the skin, resulting in a healthier skin appearance. This is particularly useful for people with skin issues such as acne, irritation, and inflammation.

• ***Inhibition of Pro-Inflammatory Cytokines:*** Dipeptide-2 can reduce the production of pro-inflammatory cytokines, such as interleukin-1 (IL-1) and interleukin-6 (IL-6). These cytokines play a key role in triggering inflammation. By reducing their presence, dipeptide-2 helps calm the inflammatory response.

• ***Reduction of NF-κB Activity:*** NF-κB (nuclear factor kappa B) is a transcription factor that regulates the expression of genes associated with inflammation. Activation of NF-κB leads to increased production of pro-inflammatory molecules. Dipeptide-2 inhibits the activation of NF-κB, thereby reducing the inflammatory response.

• ***Antioxidant Action:*** Dipeptide-2 may have antioxidant properties, meaning it can neutralize free radicals that cause oxidative stress and inflammation in the skin. By reducing oxidative stress, dipeptide-2 reduces inflammation.

• ***Mast Cell Stabilization:*** Mast cells play a key role in inflammatory processes and

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allergic reactions. Dipeptide-2 can help stabilize mast cells, reducing their degranulation and release of histamine and other inflammatory mediators.

• ***Improvement of Skin Barrier Function:*** Dipeptide-2 can contribute to strengthening the skin barrier function, making it more resistant to irritation and inflammation caused by external factors such as pollution, UV radiation, and chemical irritants.

Use in Cosmetic Products: Added to the water phase of the formulation at temperatures below 40°C. Can be combined with hyaluronic acid and amino acids. The usual recommended concentration is around 3%. Used in the production of eye creams and makeup. It is a common ingredient in "anti-aging" creams, facial moisturizers/lotions, sunscreen creams, and body lotions.

Animal Testing: Substance not tested on animals

GMO: Not GMO

Vegan: Does not contain animal-derived components

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

Raw Material Origin: USA