



## Letter From The Editor

Welcome to Aminoscope™, the new Newsletter from Kyowa Hakko USA., Inc. It is your information source to the latest trends and technological developments in the use of Amino Acids and Peptides in Cosmetics and Toiletries.

Kyowa Hakko Kogyo Co., Ltd. headquartered in Tokyo, Japan, is a world-renowned leader in Biotechnology, Fermentation and Chemical Synthesis. It is backed by over 50 years of manufacturing innovation, advanced technology and a commitment to research and development.

Today, the company is a global supplier of high quality bulk L-amino acids, D-amino acids, amino acid derivatives, peptides, nucleic acids, bulk pharmaceuticals, organic acids and other related materials. Its vast array of

products is used in Food, Dietary Supplements, Functional Cosmetics and other fields worldwide.

The first issue of Aminoscope™ will review the expanding role of amino acids and peptides in cosmetics and toiletries, with an emphasis on the key amino acid – L-Hydroxyproline. In the future issues, we will feature other amino acids and peptides, new studies in the use of these materials in Skin Care, Hair Care, Lip Care and Make-up products. We will also introduce innovative concepts, formulations and marketing tips. We hope such information will help cosmetic formulators and marketing people in creating new, functional cosmetic and personal care products.

## The Role of Amino Acids and Peptides in Cosmetics

**Amino acids** are naturally occurring ingredients essential for the growth and maintenance of the human body organs, skeletal muscles, connective tissues, skin, hair and nails.

They are the building blocks of proteins, which are formed in all living cells.

Of the many amino acids found in the body, eight amino acids are classified as essential because the body cannot produce them.

Topically applied, amino acids are substantive to skin and hair, imparting long lasting moisturization, making skin feel smooth and supple.

Amino acids are the major component of NMF (Natural Moisturizing Factor) in the Stratum Corneum, which is responsible for maintaining healthy moisture levels.

Penetration of amino acids into the skin is relatively low, but can be increased with penetration enhancers.

Most of the physiological activity of amino acids in the skin is associated with collagen and elastin synthesis by the fibroblast cells.

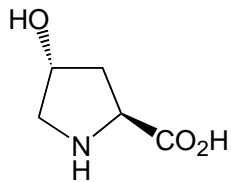
Over the last few years, there has been growing interest in certain synthetic **peptides**, (tri-peptides, penta-peptides) because of their anti-aging activity (wrinkle reduction).



## L-Hydroxyproline – The Anti-Aging Moisturizer

### Product Description

Kyowa-Hakko's L-Hydroxyproline is a white crystalline amino acid, which is a primary constituent of skin collagen, connective tissues and bones.



### Physiological Function

L-Hydroxyproline and L-proline are two of the major building blocks of collagen.

L-Proline is transformed into L-Hydroxyproline, by the enzyme Prolyl hydroxidase.

Both amino acids are necessary for the formation of collagen by the fibroblast cells. Each intact collagen molecule is composed of three polypeptide chains of approximately 1,000 amino acids.

The three polypeptide chains of amino acids produce a stable clockwise helix structure, 10% of which is L- Hydroxyproline.

While there are many types of collagen, Type I and Type IV are the most prominent collagens found in the dermis and basal layers of the skin. The skin fibroblast cells produce type I collagen, while Type IV promotes formation of the basal layers.

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### Topical Benefits

The following functions can be expected from L-Hydroxyproline in skin preparations:

1. Activation of Collagen synthesis by the fibroblast cells.
2. Normalization of the epidermal cells by the formation of the basal layer, leading to improved skin surface.
3. Proliferation of Elastic fibers, contributing to improved skin condition.
4. Increased Moisture Retention of skin, nails and hair.

### Use Levels

Hair Care:	0.25 - 1.00%
Skin Care:	1.00 - 2.50%
Lip Care:	0.50 - 0.75%
Nail Care:	0.50 - 1.50%
Body Wash & Soaps:	1.00 - 2.00%

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