

Phytokeratin™ PF Protein

Plant Protein Rejuvenation for Your Hair and Skin



INCI Name: Hydrolyzed Soy Protein & Hydrolyzed Corn Protein &
Hydrolyzed Wheat Protein

SAP Code#: 137650

Key Product Attributes

- Moisturizing
- Film-forming
- Moisture-binding

Background Information

Phytokeratin™ PF Protein is a composite product made by blending free amino acids from plants in the same proportions as they are found in the popular human hair amino acid products.

Phytokeratin™ PF Protein is a 25% active, easy-to-use aqueous solution. In Europe, the use of cosmetic ingredients derived from humans has been banned, in response to concerns about the possible transmission of the HIV virus.

Keratin, a highly insoluble protective protein composed of 18 amino acids, is synthesized intracellularly by the epidermal cells. The hydrolysis of keratin proteins will often remove the less soluble amino acids, such as cysteine, tyrosine, etc. The removal of the amino acids, like cysteine is, generally speaking, advantageous as it allows the production of a lower odor product.

Phytokeratin™ PF Protein will augment the free amino acids naturally present in the sebum and in the hair. It has been thought that the free amino acids naturally present in the hair play an important role in maintaining the moisture balance of the hair, which help to keep it moist and supple. Phytokeratin™ PF Protein low molecular weight can enable it to penetrate into the hair, providing moisturization while helping to improve its “healthy” appearance. Phytokeratin™ PF Protein will not coat the hair in the same way as the commonly used proteins and polypeptides.

Product Information

Role of Amino Acids in Cosmetics

- Benefits to the hair
- Ability to enhance moisture binding ability of the hair
- Ability to penetrate into the hair
- Will give the hair sparkle, shine and bounce
- Augment the free amino acids naturally present

Benefits to the skin:

- Augment the free amino acids present in the NMF
- Ability to penetrate down through the top six layers of the epidermis, enhancing the moisture content of the skin
- Gives skin a soft, healthy appearance

Keratin Amino Acids represent the natural way to add the free consumer amino acids essential for the healthy appearance of keratinaceous substrates such as the hair, skin and nails. Consumers are aware that their hair is composed of a protein known as keratin, and are trying to rebuild and condition hair using this as a basic building block. Oleo Phytokeratin™ SH allows the consumer to get all the benefits from keratin amino acids, but from a plant source.

A study was performed to assess the effects of Phytokeratin™ PF Protein on the break strength and stretch of chemically treated hair. After being chemically damaged via perming, hair was treated with a 5% solution of Phytokeratin™ PF Protein. The results were compared with those obtained from hair treated with a 5% solution of keratin amino acids from human and animal hair and from hair treated with water only.

Typical Amino Acid Analysis (Dry Basis)	
Aspartic Acid	8.92
Hydroxyproline	0.00
Threonine	1.81
Serine	3.98
Glutamic Acid	29.80
Proline	10.39
Glycine	2.76
Alanine	1.84
Valine	2.71
Methionine	0.88
Iso-Leucine	2.22
Leucine	4.92
Tyrosine	2.44
Phenylalanine	4.04
Hydroxylysine	0.00
Ornithine	0.00
Lysine	3.45
Histidine	1.46
Arginine	17.99
Tryptophan	0.00
Cystine	0.40

Break Strength Analysis

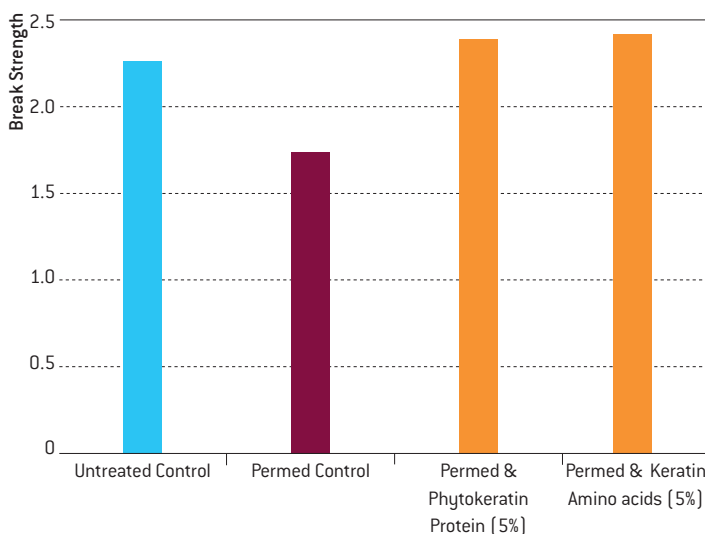


Fig. 1

Stretch Analysis

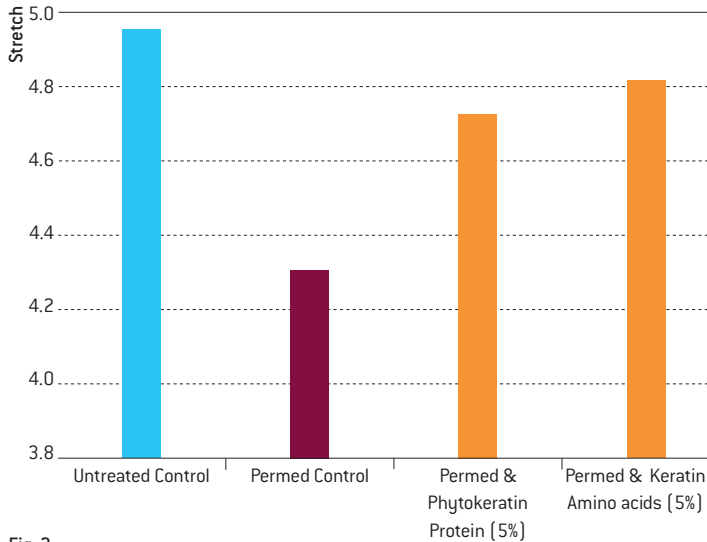


Fig. 2

Solubilities (at 5% Phytokeratin™ PF Protein)	
Water	Soluble
Glycerin	Soluble
Propylene Glycol	Soluble
Ammonium Lauryl Sulfate	Soluble
Water/Alcohol (60/40)	Soluble
Mineral Oil/Fatty Esters	Insoluble

Note: Amino Acids are amphoteric in nature and will occur as zwitterions between pHs of 2 to 10. Due to their small molecular size and charged nature, amino acids should be regarded as behaving in a similar fashion to salts when formulating.

Typical Properties	
Appearance	Clear to hazy, brown liquid
Odor	Slight, characteristic
Preservative	0.9 - 1.1% Phenoxyethanol
Microbial Content	100 opg Maximum, No Pathogens
Recommended Use Level	1.0 - 5.0%

Also available in the Phytokeratin™ Protein product line are:

Oleo Phytokeratin™ SH: Oil Soluble Plant Amino Acids

INCI Designation: AMP-Isostearyl Wheat/Corn/Soy Amino Acids

SAP Code#: 121210

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