

20624PF.

AC

Plant Keratin PF

PROTEINS



VEGAN



COSMOS



IN VITRO



IN VIVO



EX VIVO



CHINA



ISO 16128



THE FEATURES.

AC Plant Keratin PF is a water-soluble product designed by Active Concepts to help lock in moisture when applied to the skin and is suitable for many formulations and skin types. This innovative complex is an ideal ingredient for a variety of skin and hair products, serving as a deep conditioning agent that offers ease of formulation. With its unique ability to penetrate and nourish, AC Plant Keratin PF may provide a boost of moisture, enhancing the softness of hair while also helping to decrease damage. Additionally, this complex active can aid in protecting hair from environmental pollutants, possibly reducing the impact of factors such as dust, smoke and other airborne contaminants that can cause dullness and damage. This versatile ingredient may support the overall health and appearance of both skin and hair, making it a valuable addition to a wide range of personal care products.

Hydrolyzed Corn Protein & Hydrolyzed Wheat Protein & Hydrolyzed Soy Protein

Actions

Improves Hair Hydration
Reduces Frizz
Enhances Shine
Enhances Overall Feel
Anti-Pollution
Antioxidant

TECHNICAL DATA SHEET.

THE REGULATION.

INCI. Hydrolyzed Corn Protein & Hydrolyzed Wheat Protein & Hydrolyzed Soy Protein

CAS. 100209-41-4 & 70084-87-6 (or) 94350-06-8 & 68607-88-5

EINECS. 309-349-6 & N/A (or) 305-225-0 & 271-770-5

EUROPE. Compliant

USA. Compliant

CHINA. Compliant

THE SPECIFICATION.

Origin. Botanical/ Bacteria

Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*

Preservatives. None

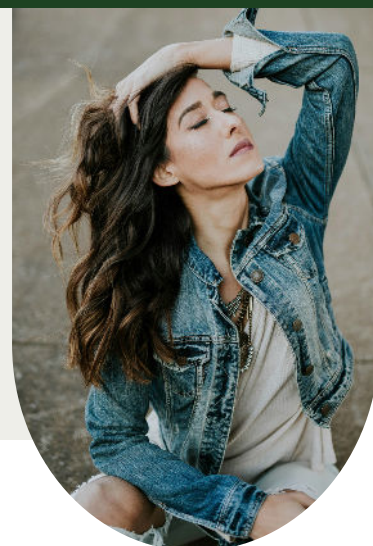
Solvents Used. None

Soluble/Miscible. Water Soluble

Appearance. Amber Liquid

Use Level. 1- 5 %

* Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0–22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.



THE STORY.

In recent years, the beauty industry has witnessed a remarkable shift towards plant-based products, driven by a growing awareness of sustainability and ethical considerations. Traditional keratin, often sourced from animal by-products, is being replaced by innovative alternatives like AC Plant Keratin PF, derived from hydrolyzed corn, wheat, and soy proteins. This shift is not just a trend but a response to a global demand for cleaner, greener beauty solutions that do not compromise on efficacy.¹ Consumers are becoming more conscientious about the ingredients in their products, seeking out those that align with their values and promote a healthier planet.

AC Plant Keratin PF stands out in this new wave of sustainable beauty. Unlike its animal-derived counterpart, it is produced through environmentally friendly processes that minimize waste and reduce carbon footprints. This plant-based alternative not only spares animals but also leverages renewable resources, making it a more eco-conscious choice. By choosing AC Plant Keratin PF, consumers are supporting a more sustainable future, where beauty and environmental stewardship go hand in hand.

Beyond its ethical and environmental advantages, AC Plant Keratin PF offers impressive benefits for both skin and hair. Its unique composition of hydrolyzed corn, wheat, and soy proteins provides essential nutrients and hydration, which may promote stronger, healthier hair and more radiant skin.² This powerful combination of proteins mimics the natural keratin found in human hair and skin, delivering comparable results without the ethical concerns, redefining beauty standards for the better.

THE SCIENCE.

The foundation of AC Plant Keratin PF's effectiveness lies in its scientifically formulated blend of hydrolyzed corn, wheat, and soy proteins. Hydrolyzation is a process that breaks down proteins into smaller, more manageable molecules, enhancing their ability to penetrate hair and skin. This results in deeper hydration and improved repair capabilities. Hydrolyzed corn protein, in particular, is known for its excellent moisture retention properties, which may make it an ideal ingredient for maintaining skin elasticity and softness.³

Additionally, hydrolyzed wheat protein adds another layer of benefits, particularly for hair care. It is renowned for its strengthening properties, which help to reduce hair breakage and split ends.⁴ Wheat protein molecules create a protective barrier on the hair shaft, shielding it from environmental damage and improving its overall resilience.⁴ This may make AC Plant Keratin PF an excellent choice for those looking to repair and fortify their hair naturally.

Furthermore, hydrolyzed soy protein brings a wealth of amino acids and essential nutrients that enhance the overall health of both skin and hair.⁵ This potent ingredient is rich in antioxidants, which help to protect the skin and hair from environmental stressors and oxidative damage caused by pollutants. In skincare formulations, hydrolyzed soy protein can act as a shield against harmful free radicals, helping to maintain a healthy complexion.⁵ In hair care, it serves as a protective barrier, defending the hair from the damaging effects of pollution and contributing to a healthier, more resilient appearance.⁵ Together, these hydrolyzed proteins form a potent blend that not only supports sustainable beauty but can potentially deliver scientifically backed benefits that consumers can see and feel. Plant keratin may be a superior, science-driven alternative that can meet the demands of modern, conscious consumers.

THE BENEFITS.

Skin

Pro-Aging ROS Scavenging Assay



Antioxidant ORAC Assay



Hair

Anti-Frizz Salon Half-Head Study



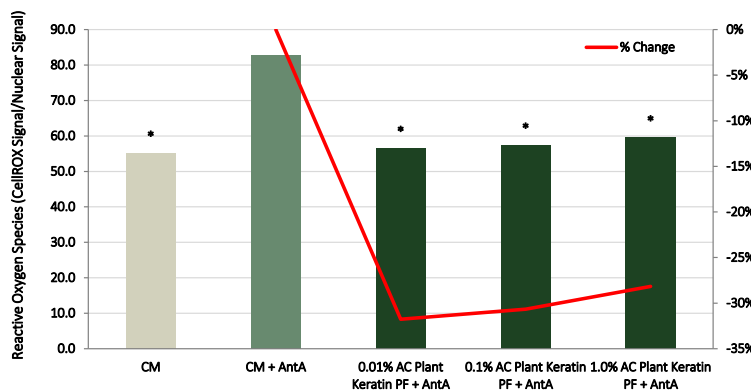
Anti-Pollution Hair Pollution Protection Assay



THE EFFICACY.

ROS Scavenging Assay.

The Reactive Oxygen Species (ROS) Scavenging Assay was conducted to assess the *in vitro* effect of AC Plant Keratin PF to scavenge unnecessary oxidative stress in dermal fibroblasts. Attenuating excessive ROS preserves cellular homeostasis and blunts intrinsic and extrinsic age-related declines in skin cell function. Fibroblasts treated with AC Plant Keratin PF at 0.01%, 0.1%, and 1.0% demonstrated 32%, 31%, and 28% reductions in ROS levels compared to fibroblasts treated with AntA, respectively.



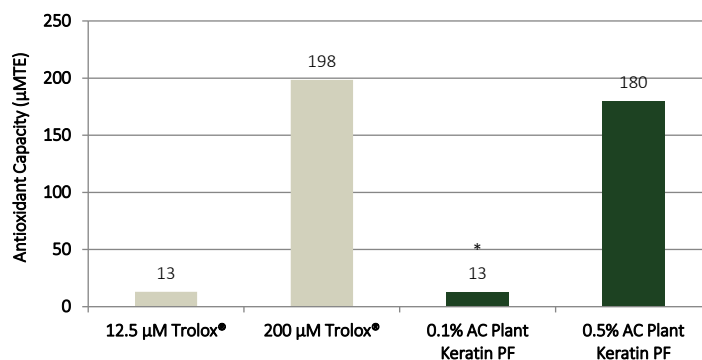
Reduces ROS levels compared to fibroblasts treated with Antimycin A (AntA) by 32%
(at 0.01%)

Pro-Aging.

Attenuation of excessive oxidative stress

ORAC Assay.

An Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to assess the antioxidant capacity of AC Plant Keratin PF. Reactive oxygen species (ROS) are generated by normal cellular processes, environmental stresses, and UV irradiation. ROS are dangerous to cellular structures and functional molecules (i.e DNA, proteins, lipids) as they act as strong oxidizing agents or free radicals. AC Plant Keratin PF showed antioxidant activity at AC Plant Keratin PF 0.5% concentration to 200 μ M Trolox[®]. AC Plant Keratin PF is capable of providing antioxidant properties and aids in the anti-aging process through protection at the cellular level.



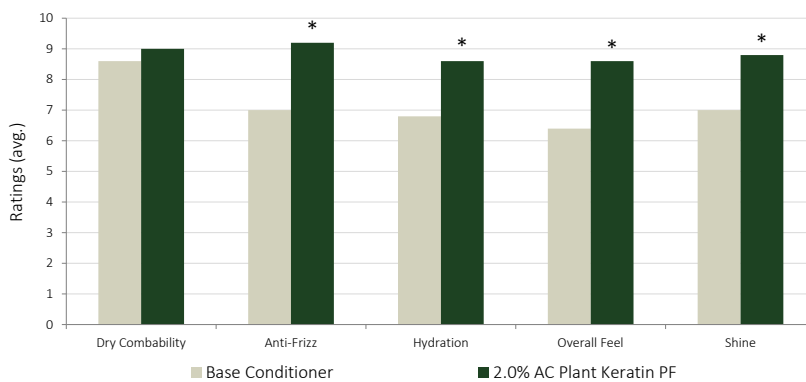
Exhibited greater antioxidant activity than 200 μ M Trolox[®].
(at 0.5%)

Antioxidant.

Free radical quenching abilities & Cellular protection

Salon Half-Head Study.

A Salon Half-Head Study was conducted to evaluate the perceived hair benefits of 2.0% AC Plant Keratin PF in a shampoo and conditioner on wet and dry hair. Wet sensory analysis of the Base Shampoo demonstrated perceived hair benefits were slightly below average for Wet Combability, above average for Cleansing, and average for Smoothing. However, the addition of 2.0% AC Plant Keratin PF to the Base Shampoo significantly improved perceived benefits of Wet Combability by 45% and Smoothing by 12% in wet hair. Similarly, wet sensory analysis of the Base Conditioner demonstrated perceived hair benefits were above average for Wet Combability and slightly above average for Smoothing. The addition of 2.0% AC Plant Keratin PF to the Base Conditioner significantly increased perceived benefits of Wet Combability by 24% and Smoothing by 65% in wet hair. After hair was blown dry with a round brush, dry sensory analysis of the Base Conditioner demonstrated perceived hair benefits were above average for Dry Combability, Anti-Frizz, Hydration, Overall Feel, and Shine. However, the addition of 2.0% AC Plant Keratin PF to the Base Conditioner significantly improved perceived benefits of Dry Combability by 5%, Anti-Frizz by 31%, Hydration by 26%, Overall Feel by 34%, and Shine by 26% in dry hair. These results demonstrate AC Plant Keratin PF enhances the perceived ability to brush dry hair easily, helps hair fall uniformly while reducing flyaways, improving the satisfaction of hair feel, increasing the brightness and luminous appearance of hair, and enhancing the appearance of clean hair with a soft feel when added to a conditioner.



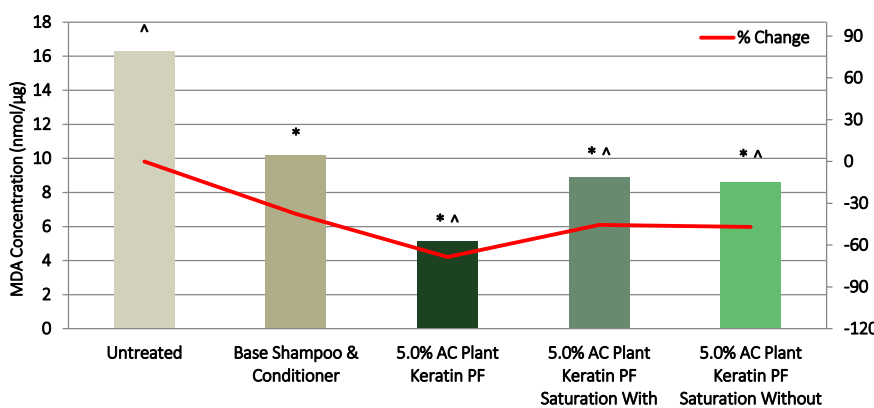
Improves Anti-Frizz compared to Base Conditioner by 31% **(tested at 2%)**

Anti-Frizz.

Enhances visual and perceived hair characteristics

Hair Pollution Protection Assay.

A Hair Pollution Protection Assay was conducted to assess the ability of AC Plant Keratin PF to protect hair from the oxidative effects of air pollution. Hair is subject to these environmental aggressions as well as UV irradiation and, unlike the skin, hair is quite vulnerable and lacks self-protection mechanisms. Exposure to environmental pollution can result in dry, brittle hair with decreased strength and elasticity. Hair treated with 5% AC Plant Keratin PF prevents lipid peroxidation in hair when exposed to air pollution.



Reduced MDA levels by 68% compared to untreated control **(tested at 5%)**

Anti-Pollution.

Hair homeostasis & Cellular aging reduction

References:

- Sharma, Swati, and Arun Gupta. "Sustainable management of keratin waste biomass: applications and future perspectives." *Brazilian Archives of Biology and Technology* 59 (2016): e16150684.
- Chilakamarry, Chaitanya Reddy, et al. "Extraction and application of keratin from natural resources: a review." (2021).
- Belsito, Donald V., et al. "Safety Assessment of Plant-Derived Proteins and Peptides as Used in Cosmetics." (2017).
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- Teglia, Alessandro, and Gianfranco Secchi. "Proteins in cosmetics." *COSMETIC SCIENCE AND TECHNOLOGY SERIES* (1999): 391-464.

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