20586PF.

AC

Keratin Hydrolysate 30 PF

Restorative

Protective

Antioxidant

Active Concepts

SEPHORA CLEAN

CREDO CLEAN

GLOBALLY COMPLIANT

ISO 16128

THE FEATURES.

AC Keratin Hydrolysate 30 PF leverages one of the body's most essential structural proteins, keratin, to support the health and appearance of both skin and hair. Though outwardly different, these surfaces share a common foundation, making keratin-based actives uniquely effective for conditioning and protection. Derived from wool and hydrolyzed into low molecular weight peptides, this ingredient becomes water-compatible and highly functional, forming a lightweight film on the surface to smooth, condition, and enhance overall feel. In the face of daily stressors, AC Keratin Hydrolysate 30 PF helps reinforce the vitality of hair.

INCI: Hydrolyzed Keratin

TECHNICAL DATA SHEET.

AC Keratin Hydrolysate 30 PF

THE STORY.

Hair tells a story of styling, environment, routine, and time. At its core, every strand is built from keratin, the very protein responsible for its strength, structure, and resilience. But daily exposure to heat styling, cleansing, environmental stressors, and chemical treatments can gradually erode this foundation, leaving hair feeling dry, dull, and more prone to breakage.

AC Keratin Hydrolysate 30 PF reconnects hair to what hair inherently needs. Derived from sheep wool, oneo f nature's richest and most durable sources of keratin, this ingredient delivers bio-compatible protein fragments that work in harmony with the hair fiber. Through hydrolysis, keratin is transformed into smaller, functional peptides that can evenly deposit onto the surface of the hair, forming a lightweight, conditioning film that helps smooth the cuticle and improve overall feel.

In a market shifting toward performance-driven, biomimetic solutions, keratin remains a gold standard — not as a harsh restructuring treatment, but as a gentle, daily reinforcement of hair's natural architecture. AC Keratin Hydrolysate 30 PF offers brands a way to bring this legacy ingredient into a modern context, supporting healthier-looking, more resilient hair with every use.

THE SCIENCE.

Hydrolyzed keratin, particularly when derived from wool, consists of bio-compatible polypeptides that closely resemble the natural keratin structure of the hair fiber, enabling strong affinity for damaged regions of the cuticle and cortex. Upon application, these peptides adsorb onto the hair surface and form a cohesive film along the cuticle edges, effectively smoothing lifted scales and improving surface uniformity. This film-forming behavior has been visualized through scanning electron microscopy, where hydrolyzed keratin deposits at the cuticle interface, reducing roughness and enhancing overall fiber smoothness and shine.[1]

Beyond surface effects, low molecular weight keratin fragments have been demonstrated to be capable of partial penetration into the cortex, where they help reinforce the internal protein matrix. This dual deposition-penetration mechanism allows hydrolyzed keratin to fill micro-defects within damaged hair fibers, restoring mechanical strength and improving tensile properties.[1,2] Studies have also shown that wool-derived keratin treatments can increase fracture resistance, improve elasticity, and enhance structural integrity through the re-establishment of protein interactions and amide bonding wtihin the hair fiber.[3]

In addition to repair and conditioning, hydrolyzed keratin provides protective benefits against environmental stressors. The film formed on the hair surface acts as a physical barrier, helping to reduce UV-induced damage and oxidative degradation of the cuticle. This protective layer has been shown to preserve hair morphology and mitigate surface erosion under photoaging conditions, supporting long-term fiber resilience.[1,2] Collectively, these mechanisms — cuticle smoothing, overall repair, and environmental proteciton — position hydrolyzed keratin as a multifunctional active for improving the health, appearance, and durability of hair.

THE TECHNICAL DETAILS.

INCI. Hydrolyzed Keratin
CAS. 69430-36-0
EINECS. 274-001-1
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

Origin. Animal/Bacteria/Plant
Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*
Preservatives. None
Solvents Used. Water
Appearance. Clear to Hazy Amber Liquid

THE FORMULATION TIPS.

pH Stability. 4 - 7
Temperature Stability. May change appearance if exposed to cold temperatures. Gently warm to 45 - 50 °C and mix until normal appearance is restored.
Use Level. 1 - 5%

Ionic State. Nonionic
Alcohol Compatibility. 1-5% is compatible with up to 50% alcohol
Solubility. Water Soluble
Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

** 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.*

AC Keratin Hydrolysate 30 PF

THE BENEFITS OVERVIEW.

Protective *Confocal Microscopy*

Restorative *Scanning Electron Microscopy*

Antioxidant *Oxygen Radical Absorbance Capacity (ORAC) Assay*

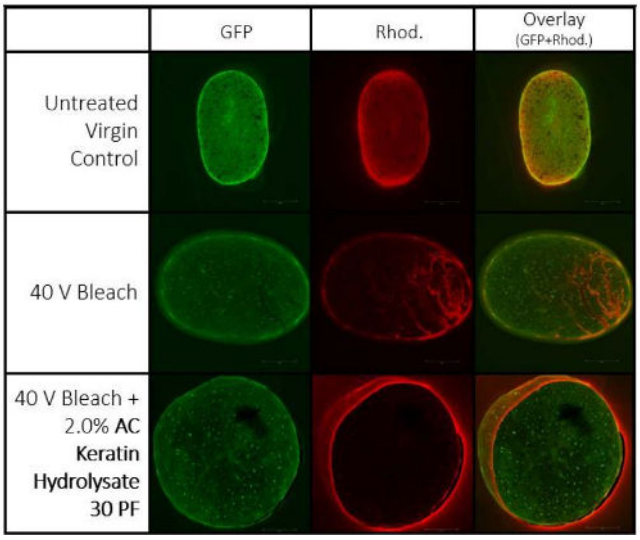
Reactive Oxygen Species (ROS) Scavenging Assay

THE EFFICACY.

Protective

To evaluate protective performance, confocal microscopy was used to visualize and quantify structural damage in hair fibers following chemical processing. Virgin hair tresses were bleached, then treated with AC Keratin Hydrolysate 30 PF and compared to untreated controls. Using fluorescent imaging to distinguish keratin and lipid integrity, this method allows for both qualitative and quantitative assessment of hair damage. By maintaining fluorescence levels closer to untreated hair, AC Keratin Hydrolysate 30 PF demonstrates its ability to help protect the hair.

Confocal Microscopy

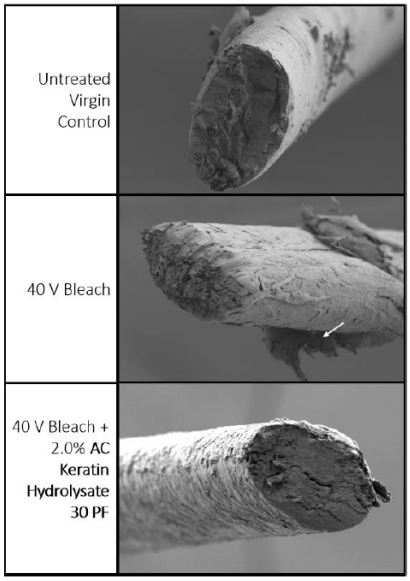


Retained +67% of keratin and +50% of lipids

Restorative

To assess restorative performance, scanning electron microscopy (SEM) was used to visualize surface-level damage in hair fibers following chemical processing. Virgin hair tresses were bleached, then treated with 2.0% AC Keratin Hydrolysate 30 PF and compared to untreated controls. High-resolution imaging allowed for qualitative and quantitative evaluation of hair integrity, with smoother, more uniform cuticle structures indicating improved protection. This approach demonstrates the ability of AC Keratin Hydrolysate 30 PF to help preserve the structural integrity and appearance of chemically treated hair.

Scanning Electron Microscopy

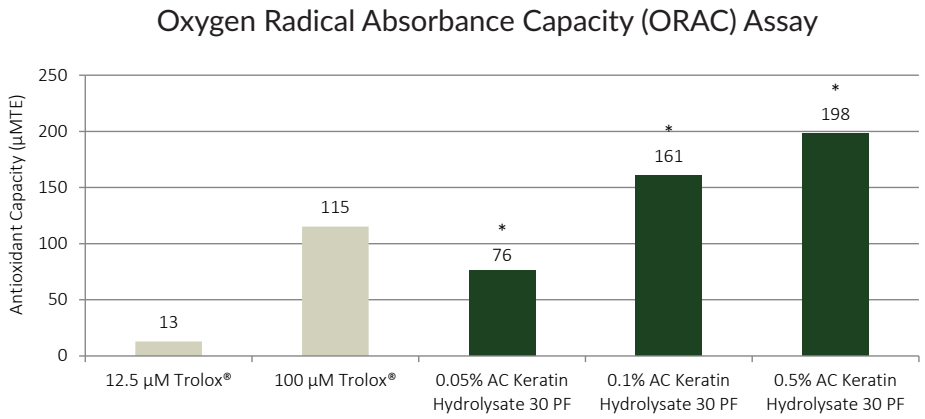


Preserved +86% of hair integrity

THE EFFICACY CONTINUED.

Antioxidant

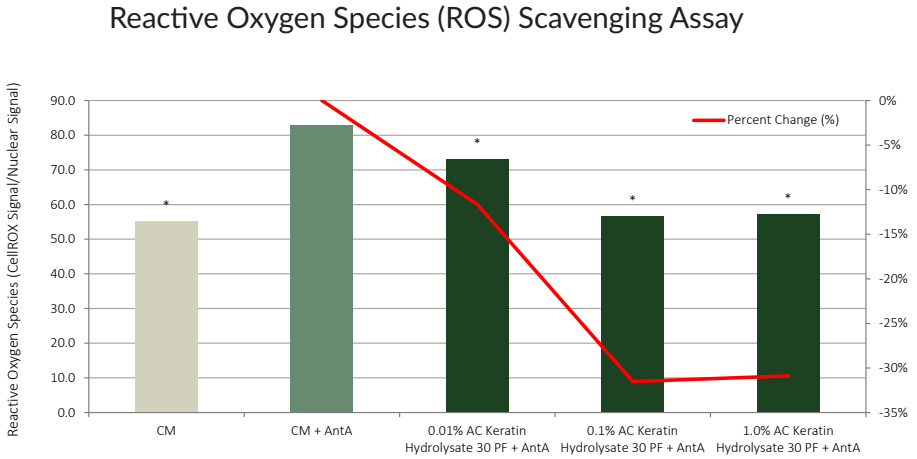
An Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to measure the antioxidant capacity of AC Keratin Hydrolysate 30 PF. This method assesses the ingredient's ability to neutralize free radicals and prevent oxidative damage by comparing its activity to a known antioxidant standard, Trolox®. By demonstrating the ability to quench reactive oxygen species (ROS), AC Keratin Hydrolysate 30 PF highlights its role in helping protect hair and skin from oxidative stress and supporting overall fiber and skin integrity.



Increased antioxidant capacity by +33%

Antioxidant

A Reactive Oxygen Species (ROS) Scavenging assay was conducted in human dermal fibroblasts using fluorescent probes to quantify oxidative stress at the cellular level. Cells were exposed to induced oxidative conditions, then treated with AC Keratin Hydrolysate 30 PF to assess its ability to neutralize ROS. By reducing oxidative stress and helping restore cellular balance, AC Keratin Hydrolysate 30 PF demonstrates its potential to support cellular resilience and protect against stress-induced damage.



Decreased ROS by -37%

References:
1. Fan, J., et al. (2025). Performance and mechanism of hydrolyzed keratin for hair photoaging prevention. PMC.
2. Malinauskyte, E., et al. (2020). Penetration of different molecular weight hydrolysed keratins into hair. International Journal of Cosmetic Science.
3. Liu, Y., et al. (2023). Enzymatic crosslinking of amino acids improves the mechanical properties of damaged hair treated with hydrolysed wool keratin. Polymers.

Active Concepts LLC
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

Active Concepts SRL
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

Active Concepts LLC, Asia
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw

Website
www.activeconceptsllc.com

Social Media
@activeconceptsglobal