

# Active.Lite® Hair for Bleaching



## BACKGROUND

Not all hair is created equal. In a perfect world you would be born with the hair you want, but twice as often you get the opposite. Whether it is curly, straight, frizzy, short, long or any number of factors one thing holds true, change is desirable and damage is inevitable. Too often we find ourselves playing Doctor, Nurse, or even coroner on our own hair. Dealing with damage post treatment is a thing of the past, preventative medicine is in, and now thanks to Active.Lite® Hair, so are preventative cosmetics.

Hair bleaching or dyeing is prone to leave hair stripped, dry, and cracked; giving a “burnt” appearance. As the saying goes “appearances are everything”, that is true for hair as well, “burnt” hair is weaker and significantly more prone to breakage. In science, this property is referred to as tensile strength, or ultimate strength. The total stress a material can withstand while being stretched or pulled before failing or breaking. Guarding or even improving your hairs tensile strength has direct implications to its overall look and feel, Active.Lite® Hair was designed for this purpose with the additional benefit of providing the everyday moisturizing and nourishing necessary for healthy, vibrant hair.

## SCIENCE

Through the use of cationic polymers, peptides, and powerful moisturizing agents, Active.Lite® Hair is the entire package. Engineered composite particles bring the idea of a multi-step and multi-level web of protection to life. Active.Lite® Hair is a chemically resilient material that ionically binds to hair cuticles and offers long-term protection from harsh hair bleaches, free radicals, and peroxides, in addition to already necessary nourishment. Due to hair’s daily exposure to mechanical, thermal, and chemical stress, designing a product for maximum protection requires it to work under heavy pH stress and a level of stability never before seen. Similar to carbonate preventing acidosis of the blood and major tissue systems, proteins act as natural buffers to remove hydrogen radicals and balance pH. Amino acids, such as those common in Pisum sativum can release hydrogen ions in alkaline environments but also respond to acidity by binding excess hydrogen.

**Code Number:** 22045

**INCI Name:** Polyquaternium-80 & Water & Hydrolyzed Pea Protein & Selaginella Lepidophylla Extract

**INCI Status:** Conforms

**REACH Status:** Complies

**CAS Number:** N/A & 7732-18-5 & 222400-29-5 & 90106-73-3

**EINCS Number:** N/A & 231-791-2 & N/A & 290-298-0

**Origin:** Botanical

**Processing:**

- GMO Free
- No Ethoxylation
- No Irradiation
- No Sulphonation

**Additives:**

- Natural Antimicrobial: Leuconostoc/Radish Root Ferment Filtrate
- Preservatives: None
- Antioxidants: None
- Other additives: None

**Solvents Used:** Water

**Appearance:** Clear to Slightly Hazy Semi-Viscous Liquid

**Soluble/ Miscible:** Water Soluble

**Microbial Count:**

< 100opg, No Pathogens

**Suggested Use Levels:** See Preparation Guidelines (page 4)

**Suggested Applications:**

Hair Protecting, Nourishing, Support

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Film-forming properties are a popular claim in modern cosmetics, but boring and usually misleading. A film can loosely be defined as a thin layer of something, by that definition, water on the skin is a film. A bio-film is of much more interest; a polymeric chain forming a conglomeration of proteins, amino acids and polysaccharides that creates a complex supporting interwoven matrix. Alone, each substance has its benefit, but together complex metabolic functions are kickstarted that play on small scale biochemical interactions. A major benefit of the bio-film is its action as scaffolding rather than a true barrier. Able to support and protect hair, whilst still allowing small molecules and hydrogen ions in through its semipermeable facades. Thus allowing for the exhibition of properties such as moisturization, pH balance, barrier protection, and through this scaffolding, even protection from inevitable hair weakening through bleaches and dyes.

## BENEFITS

Designed to be effective in both salon grade and consumer available products, Active.Lite® Hair is a must have for any formulation that will offer lasting protection, and chemical “burn” prevention for healthy cuticles. Never before has a product been able to successfully protect hair whilst reducing pigmentation. Utilizing matrix style scaffolding and poly-compound reactions, this self-supporting, all in one, highly stable formula is able to create next generation, lasting protection for the hair whilst still leading to successful and attractive hair bleaching.

## EFFICACY DATA

Active.Lite® Hair should be added to a bleach formulation to protect the hair from breakage during the bleaching/colouring process. This product is not designed to increase color lift.

Active.Lite® Hair exhibits both visual and sensorial properties that are most commonly associated with healthy vibrant hair when compared to bleached hair. An *ex-vivo* salon study, conducted by salon professionals, shows a clear difference in hair that has been “sealed” and protected using Active.Lite® Hair, with less frizz and increased volume. It should be noted that the concentration of bleach does not need to be changed in order to obtain the desired color.

**Bleached Hair (No Additive)**



**20 Volume      30 Volume      40 Volume**

Figure 1. Bleached Hair with no additive.

**Bleached Hair (With Active.Lite® Hair)**



**20 Volume      30 Volume      40 Volume**

Figure 2. Bleached Hair with Active.Lite® Hair

# Active.Lite® Hair for Bleaching



## EFFICACY DATA

Hair is readily prone to damage from everyday stresses, showing characteristic signs of breakdown. Bleaching the hair, as seen in Figure 3, further damages the hair fiber, leading to irregular growth, breakages, and overall unhealthy appearance. At a singular level one cuticle may not seem important, but these strand to strand imperfections contribute to a much larger picture of unhealthy and unprotected hair. As shown in Figures 4 and 6, treating the hair with Active.Lite® Hair makes a difference at the microscopic level, creating a scaffolding like matrix to support hair whilst still allowing in small molecules for hair bleaching. Whereas Figures 3 and 5 shows that the cuticle is clearly damaged, Figure 4 indicates Active.Lite® Hair protects each fiber by protecting the cuticle, leaving it smooth and annealed contributing to overall healthier looking, and feeling hair.

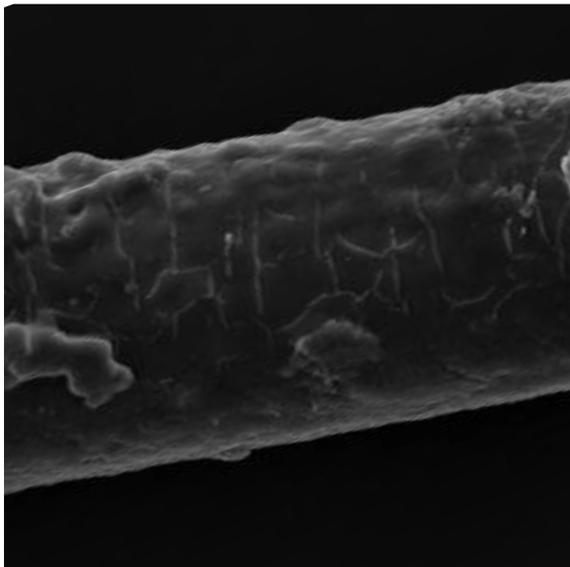


Figure 3. SEM Condition of the Cuticle. 30 Volume, No Treatment, 100 µm

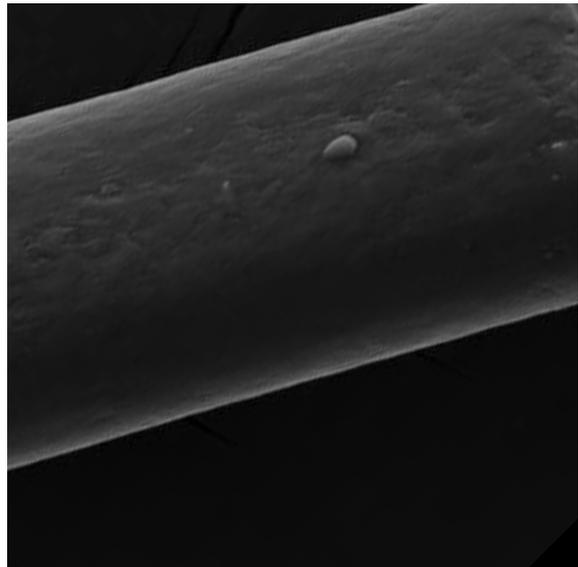


Figure 4. SEM Condition of the Cuticle. 30 Volume, Treatment with Active. Lite® Hair, 100 µm

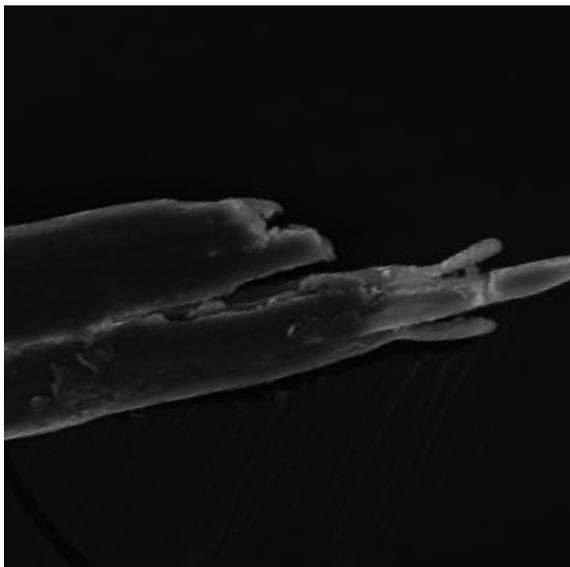


Figure 5. SEM Condition of the Hair Tip, 40 Volume, No Treatment, 100 µm

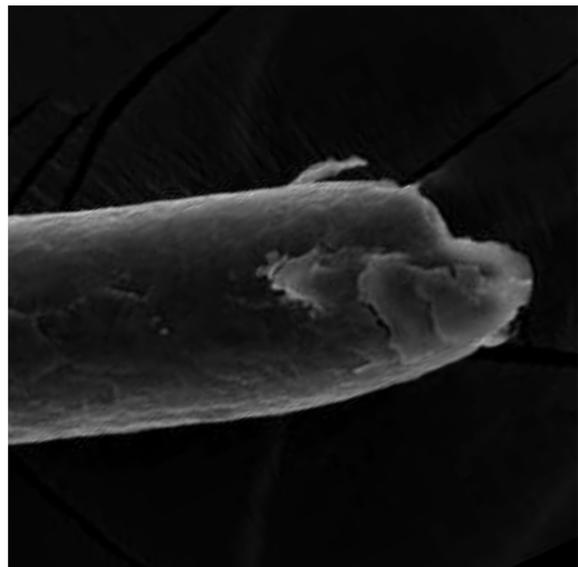


Figure 6. SEM Condition of the Hair Tip, 40 Volume, Treatment with Active.Lite® Hair, 100 µm

# Active.Lite® Hair for Bleaching



## PREPARATION GUIDELINES

**Active.Lite® Hair is an incredible scientific breakthrough that is projected to shake the foundations of how we consider preventative hair care. As such, here are some guidelines to follow for the best formulation/use results.**

1. Prepare a solution of 10% Active.Lite® Hair in water.
2. Weigh the desired amount of the Bleach Powder and mix with 2 parts of the Developer.
3. Add 25% of the Active.Lite® Hair solution based on the amount of Powder used.  
Example: 20g of Bleach Powder plus 40g of Developer = 5g of Active.lite® Hair Solution.
4. Apply the Bleach to hair as usual.

Active.Lite® Hair can also be used in conditioners and sealing products! Active.Lite® Hair can be incorporated anywhere from 2 to 5% in the water phase.

### TO NOTE:

**This formulating guideline is strictly for Bleach Powder Lighteners.  
Do NOT add Active.Lite® Hair to the dry bleach powder.  
Follow above guidelines for optimal results.**

#### References:

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- 2) Reeves, R. et al. 1976. Journal of Applied Physiology. Temperature-induced changes in blood acid-base status: pH and PCO2 in a binary buffer. 40(5): 752-761
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- 4) Imai, T. et al. 2011. Okajimas Japan's Anatomic Journal. The influence of hair bleach on the ultrastructure of human hair with special reference to hair damage. 88(1): 1-9
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