

# Active.Lite<sup>®</sup> Hair for Bleaching

Patent Pending: Application Number 62/289,493

**Hair Protection + Nourishment + Support**

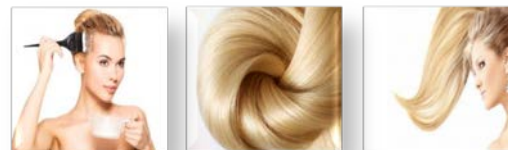


Tomorrow's Vision... *Today!*<sup>®</sup>

# Active.Lite<sup>®</sup> Hair for Bleaching

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## Technical Information:



**Product Code:** 22045

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

**INCI Status:** Approved

**Suggested Use Level:** See Formulation Guidelines

**Suggested Applications:** Hair Protection, Nourishing, Support

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## What is it?



**Active.Lite<sup>®</sup> Hair** is a complex blend that creates a highly effective hybrid biopolymer

- Polyquaternium-80
  - Conditioning agent
  - Provides shine
  - Provides excellent wet combability
  - Creates a hydrophobic film
- Hydrolyzed Pea Protein
  - Complete source of amino acids
  - Most balanced amino acid profile of any vegetable protein
  - Excellent source of Lysine
  - Lysine promotes the health of the hair, scalp and skin & contributes to protein formation
  - Antioxidant protection
- *Selaginella lepidophylla* Extract
  - Intense moisturizing benefits
  - Provides intense therapy to repair damage

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## Hair Bleaching Process



- Bleaching removes hair color through the process of oxidation using both hydrogen peroxide and amines<sup>3</sup>
- In order for hydrogen peroxide to access melanin in the cortex, it must get past the outer most part of hair, the cuticle
- Using Amines, the pH is increased, causing the hair fiber to swell
- This swelling “breaks open” the cuticle, allowing hydrogen peroxide to penetrate the cortex<sup>1</sup>

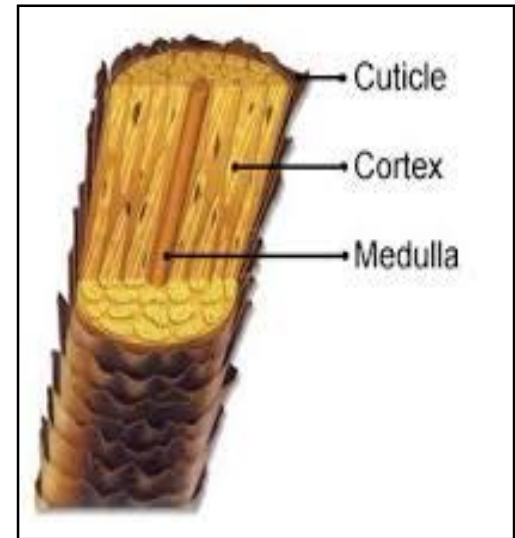


Figure 1. “The Art of Colour – Colour Theory for Hairdressing”. [Hair and Makeup Artist Handbook.com](http://HairandMakeupArtistHandbook.com). Web. 5 Oct 2015.

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## Hair Bleaching Process



- Once in the cortex, hydrogen peroxide first solubilizes melanin in the hair, then decomposes the melanin<sup>1</sup>
- This process renders the pigments colorless<sup>1</sup>
- While the cuticle must be opened for bleaching to occur, this is damaging to the hair fiber
- The available bleaching applications contain different concentrations of hydrogen peroxide and therefore bleach to different degrees.

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## Damages from Hair Bleaching



- Bonds in the hair are broken during thermal, chemical & mechanical services
- When these bonds are broken, the hair's appearance starts to diminish and theoretically 'ages' the hair
- Damage from bleach includes dry, brittle, inelastic hair, and hair that is more prone to split ends<sup>2</sup>
- Bleached hair is also more porous and swollen and therefore more vulnerable to other chemical and non-chemical processes<sup>2</sup>
- Its effects make your hair more prone to breakage and less manageable

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## How It Works



**Active.Lite<sup>®</sup> Hair** can be added to hair bleach to gently lift the hair & protect the hair from damage associated with the harsh effects of bleach

- Chemically resilient material that ionically binds to hair cuticles and offers long-term protection from harsh hair bleaches, free radicals, and peroxides
- Cationic charge of **Active. Lite<sup>®</sup> Hair** attracts to anionic porous hair
- Creates a scaffolding like matrix to support hair whilst still allowing in small molecules for hair bleach
- Penetrates between uplifted scales in the cuticle to smooth

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## How It Works

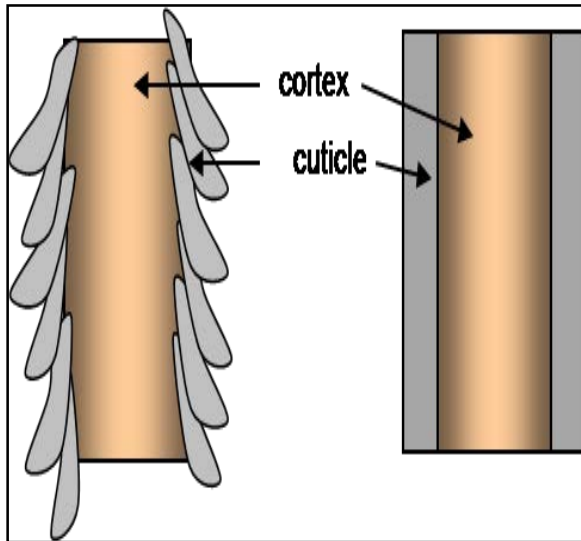


Figure 2. Healthy, Untreated Hair

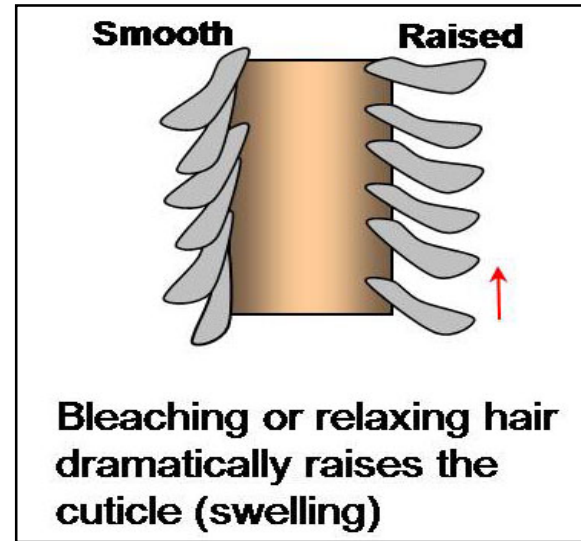


Figure 3. Bleach's Effect on Hairs Cuticle

- Untreated hair has a smooth cuticle yielding a smooth appearance
- Bleached hair has a raised cuticle, signifying damage to the hair fiber
- Cationically charged **Active.Lite<sup>®</sup> Hair** ionically bonds to hairs cuticle



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## How It Works

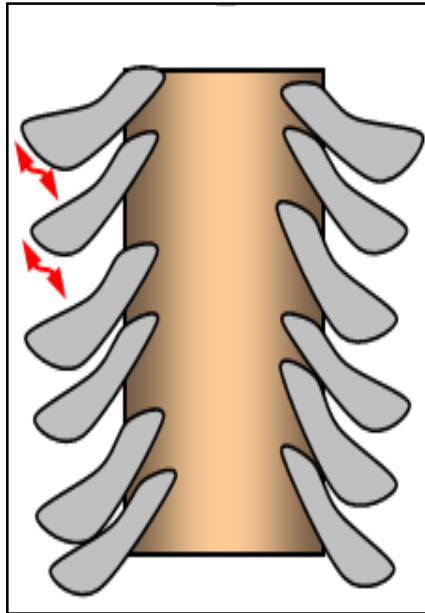


Figure 4. Bleach's effect on Hair Cuticle

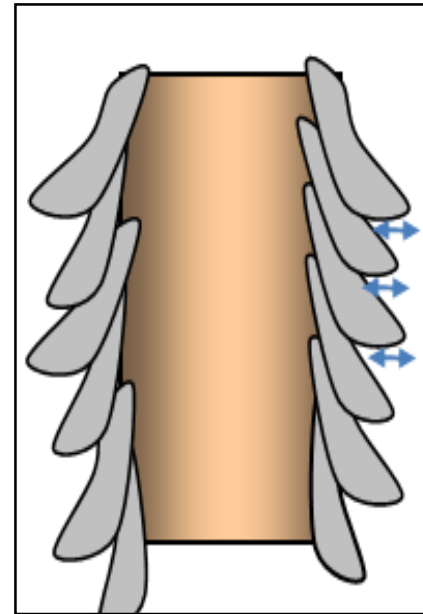


Figure 5. Active.Lite<sup>®</sup> Hair effect on Hair Cuticle

- **Active.Lite<sup>®</sup> Hair** penetrates between uplifted scales on cuticle to seal and close cuticle while small molecules and hydrogen ions can still pass through its semipermeable facades
- Yields a smooth, stronger hair protected from the harsh effects of bleach

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## Benefits



**Active.Lite<sup>®</sup> Hair** is an incredible scientific breakthrough that is slated to shake the foundations of how we consider preventative hair care

- ✓ Protects hair
- ✓ Great for all hair types
- ✓ Utilizes matrix style scaffolding and poly-compound reactions
- ✓ Strengthens hair
- ✓ Self-supporting, all in one, highly stable formula
- ✓ Fills an active market need

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## Scanning Electron Microscopy Images at 20.0 kV

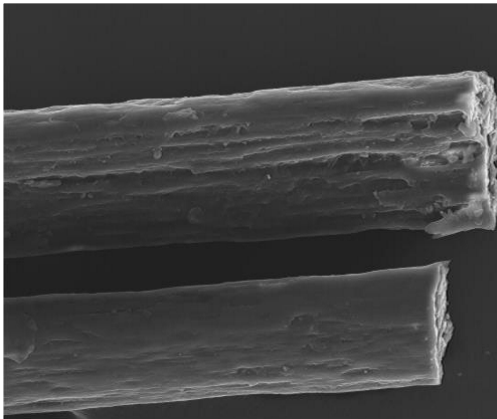


Figure 6. Untreated hair



Figure 7. Bleached Hair (40V)

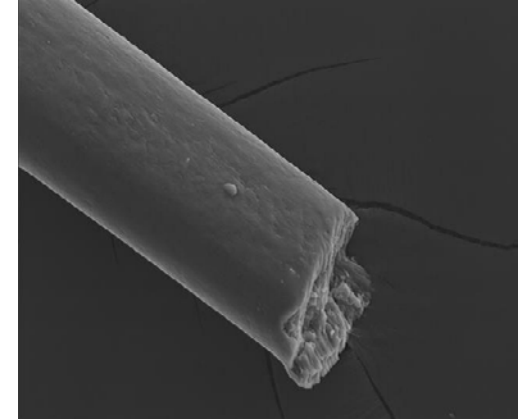


Figure 8. Cuticle Treated with Active.Lite<sup>®</sup> Hair

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## Scanning Electron Microscopy Images



### Results:

- SEM images illustrate treating hair with **Active.Lite<sup>®</sup> Hair** makes a difference at the microscopic level
- In the bleached hair the cuticle is clearly damaged
- **Active.Lite<sup>®</sup> Hair** protects each fiber by protecting the cuticle
- Creates a scaffolding like matrix to support hair
- Leaves hair smoothed and annealed contributing to overall healthier looking & feeling hair

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## Efficacy Data



### Results:

- Using an Instron, device for measuring mechanical properties
- Test Method: ASTM- D2256-10
- Measures the absolute strength
- **Active.Lite<sup>®</sup> Hair** has no perceivable change to its elongation break at Hair+Bleach (30v)
- Excellent indicator of overall strength
- Trend remains the same with increase in bleach concentration

Hair Elongation at Break

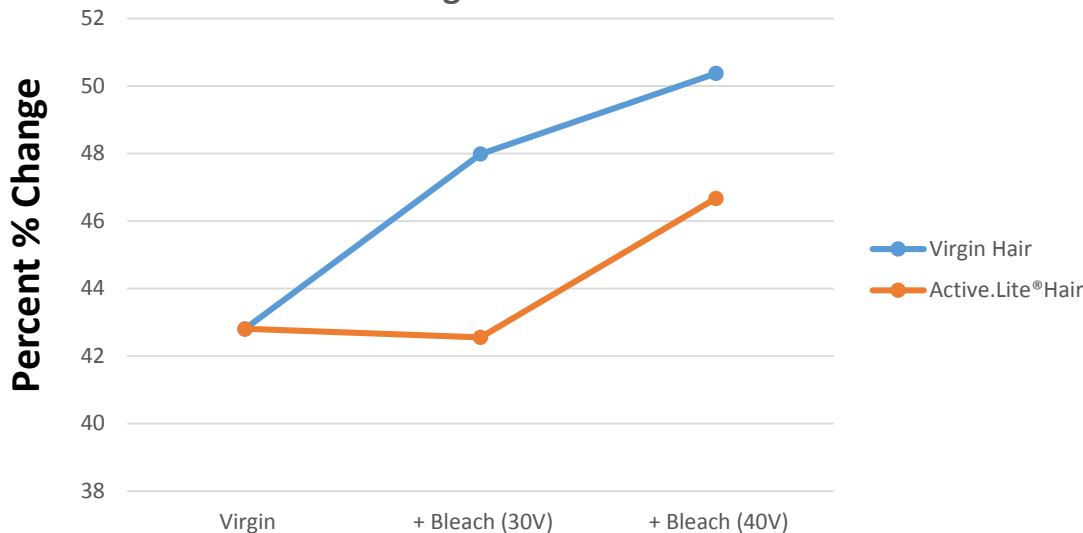


Figure 9. Elongation at break/strength Graph

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## Half Head Study

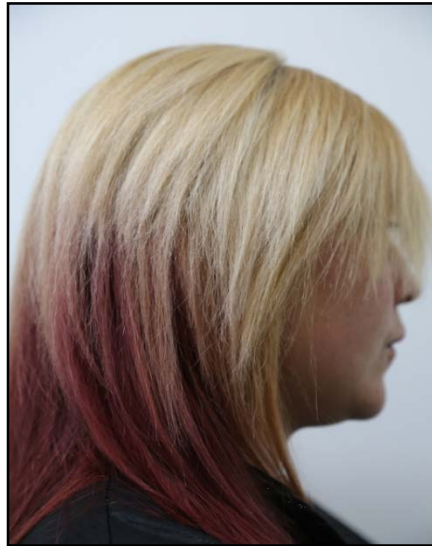


Figure 10. Unprotected (Left) vs. **Active.Lite<sup>®</sup> Hair** (Right)

## Results:

- Half-head salon study conducted by salon professionals
- **Active.Lite<sup>®</sup> Hair** exhibited both visual and sensorial properties of healthy hair
- Clear difference in hair that has been “Sealed” and protected using **Active.Lite<sup>®</sup> Hair**
- Note: that the concentration of bleach does not need to be changed in order to obtain the desired color

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## Half Head Study

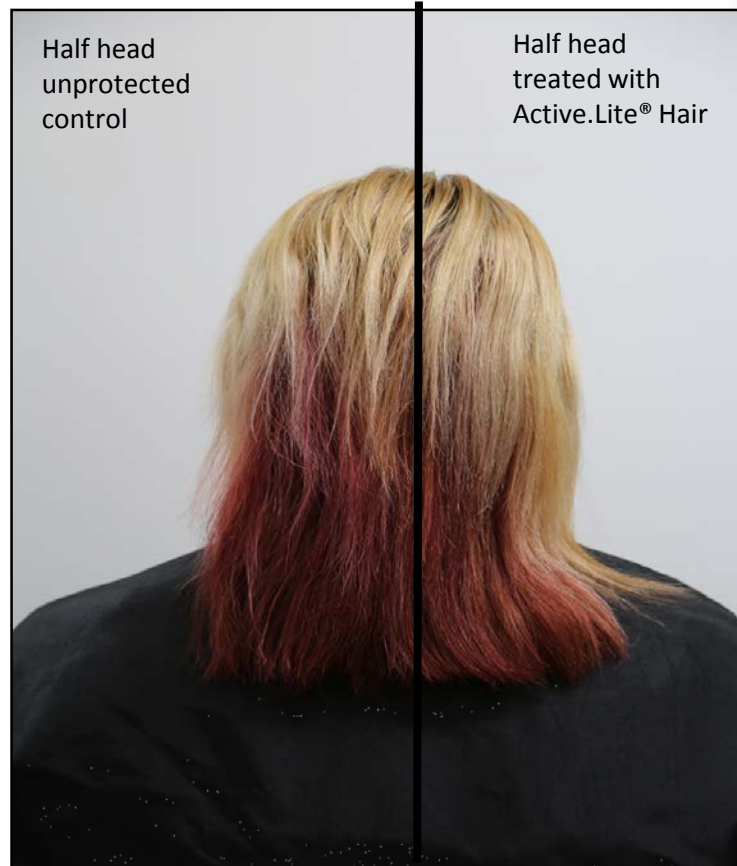


Figure 11. Unprotected (Left) vs. Active.Lite<sup>®</sup> Hair (Right)

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## Salon Study



**Figure 12.** Before (Left) vs. After Bleach with **Active.Lite<sup>®</sup> Hair** (Right)



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## Formulation Guidelines:



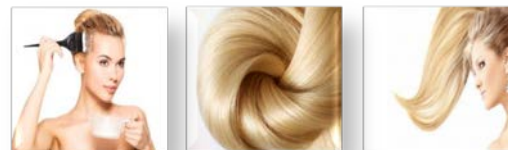
- 1) Measure 2.5% **Active.Lite® Hair** compared to DRY bleach powder  
Example: 1/2oz or less DRY bleach = 0.378g of **Active.Lite® Hair**  
Example: 1oz or more DRY bleach = 0.758g of **Active.Lite® Hair**
- 2) Measure approximately 25% water compared to dry bleach powder  
Example 1oz dry bleach (28 grams) = 6.4g of water  
Add 3.2g of water for 1/2oz or less of DRY bleach powder  
Add 6.4g of water for 1oz or more of DRY bleach powder
- 3) Combine **Active.Lite® Hair** from step 1, and water from step 2
- 4) Add developer to bleach powder until the desired consistency.  
If no benchmark exists “a butter cream” is a good target
- 5) Add the measured **Active.Lite® Hair** from step 3 with bleach from step 4

\*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.

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## References



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2. “Bleaching Your Hair”. [PhilipKingsley.com](http://PhilipKingsley.com). Web. 5 Oct 2015.
3. Ketchum, Dana. “Facts About Bleaching Hair”. [Livestron.com](http://Livestron.com). 9 Jul 2015. Web. 5 Oct 2015.
4. “The Art of Colour – Colour Theory for Hairdressing”. [Hair and Makeup Artist Handbook.com](http://HairandMakeupArtistHandbook.com). Web. 5 Oct 2015.

# Active Concepts LLC

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Thank you!

For more information –Visit our website!

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