AC Kerazyme®
Temporary Straightening, Curling, Conditioning & Protecting

Tomorrow’s Vision... Today!®
**16594 – AC Kerazyme®**

**Product Code:** 16594

**INCI Name:** Hydrolyzed Keratin & Trametes Versicolor Extract

**INCI Status:** Conforms

**Suggested Use Level:** 1.0 - 10.0%

**Suggested Applications:** Temporary Straightening, Curling, Conditioning & Protecting
Hair: Growing Demands

Products that help straighten hair

Versatility to style hair

**Products that protect the hair from damage caused by heat & friction**
- Flat Ironing
- Blow Drying

Current Products are focused on:
- Protecting the hair
- Enhancing Manageability
- Providing Shine

What are they all missing?

The ability to help straighten the hair!
Hair: Brazilian Hair Straightener

What is it?
• Temporary Hair Straightener
• Also called “Escova Progressiva”
• Consists of applying solutions of formaldehyde (1.5-5.0%) to hair before straightening
• After Treatment the hair can remain straight for up to 4 weeks

How does it work?
• Formaldehyde cross links with protein end groups
• This creates a stable & complex matrix
• It modifies the shape of the Hair
Hair: AC Kerazyme®

Natural & Effective Solution

• A unique blend of hydrolyzed keratin & Trametes versicolor extract
  • *Trametes versicolor* is a mushroom grown throughout the U.S.
  • Contains laccase
  • Copper containing oxidative enzyme
    • Cross links keratin to hair
    • Does not damage hair
    • Coincides with natural trends
How does it work?

- Laccase cross links free carboxylic acid groups in hydrolyzed keratin with the amine groups present in keratin hair fibers.
- Thermally activated.
- Additional Benefit: Hydrolyzed keratin deeply nourishes hair.
Hair: AC Kerazyme®

How does it work?

• Laccase reacts with amine groups in the hydrolyzed keratin via the reactive groups on the hair fiber

• Laccase fortifies disulfide bonds (-S-S-)
  o This helps enhance hair strength & repairs damage

• Also improves style retention with effects that last until the hair is washed

\[
\text{Laccase} \quad \begin{array}{c}
\text{R} \\
\text{SH} \\
\text{SH} \\
\text{R}
\end{array} \quad \text{Laccase} \quad \begin{array}{c}
\text{S} \\
\text{S} \\
\text{R} \\
\text{R}
\end{array} + 2H^+ + 2e^- \quad \text{Disulfide Bond}
\]
**In-vivo Efficacy Data: AC Kerazyme®**

**SEM Images**

- Tress 1 1250x
- Tress 1 350x
- Tress 2 1250x
- Tress 2 350x

**Figure 1**: **Tress 1**: Virgin, undamaged hair; left untreated. **Tress 2**: Virgin, undamaged hair with a single application of AC Kerazyme®.
**In-vivo Efficacy Data: AC Kerazyme®**

**SEM Images**

**Analysis**

- Tress 1 shows hair fibers with no perceivable damage
- Tress 2 shows undamaged hair fibers, however it is clear that AC Kerazyme® forms a film around the hair
- This film confirms that the product evenly deposits along the hair shaft

*Figure 2: Tress 1:* Virgin, undamaged hair; left untreated. *Tress 2:* Virgin, undamaged hair with a single application of AC Kerazyme®.
**In-vivo Efficacy Data: AC Kerazyme®**

**SEM Images**

**Protocol** (Tresses 3 & 4)

- Wash with Herbal Essences Hello Hydration Shampoo & rinse with warm water
- Comb 5 times
- Blow Dry
- Apply 5.0% AC Kerazyme® (Tress 4 only)
- Comb 5 times
- Flat iron 10 times

- The above protocol was repeated 30 times to stimulate a month’s worth of maintenance.

Figure 3: **Tress 3**: Processed Hair - Untreated  **Tress 4**: Processed Hair – Treated with 5.0% AC Kerazyme®.
In-vivo Efficacy Data: AC Kerazyme®

SEM Images

Tress 3 1250x

Tress 3 350x

Tress 4 1250x

Tress 4 350x

Analysis

• Compared to tress 1, after a month’s worth of processing, tress 3 is severely damaged. The cuticle is highly degraded & the bright white areas show that structural damage as occurred.

• The SEM images for tress 4 are similar to tress 1. Clearly this illustrates that AC Kerazyme® imparts protective & reparative properties that allow for the cuticle to remain intact & undamaged.

Figure 4: **Tress 1**: Virgin, untreated hair. **Tress 3**: Processed Hair – Untreated Control. **Tress 4**: Processed Hair treated with 5.0% AC Kerazyme®.
**In-vivo Efficacy Data: AC Kerazyme®**

**Analysis**

- Tress 1 & 4 are very similar:
  - Tress 1 is virgin undamaged hair and tress 4 is processed hair that was treated with 5.0% AC Kerazyme® during the processing cycle.
  - This further confirms that AC Kerazyme® helps prevent & repair damage.

*Figure 5: Tress 1:* Virgin, untreated hair.  
*Tress 4:* Processsed Hair treated with 5.0% AC Kerazyme®.
**In-vivo Efficacy Data: AC Kerazyme®**

Half Head Study

**Picture 1 - Before**

**Picture – 2 After**

*Figure 6: Picture 1:* The natural curly hair subject. *Picture 2:* The hair after straightening with a flat iron.*
**In-vivo Efficacy Data: AC Kerazyme®**

Half Head Study

**Picture 1 - Before**

**Picture – 2 After**

*Figure 7: Picture 1*: The natural curly hair subject. *Picture 2*: The hair after straightening with a flat iron.*
In-vivo Efficacy Data: AC Kerazyme®

Half Head Study

![Image of half head study showing the effect of treatment with AC Kerazyme® compared to no treatment.]

**Figure 8: Picture 1 & Picture 2:** The natural curly hair subject after straightening half of the head of hair with a flat iron.
In-vitro Efficacy Data: AC Kerazyme®

**Protocol**
- Trolox was used as the positive control
- Solutions were prepared at three concentrations, as a reference
- Florescent measurements were taken every 2 minutes for 2 hours
- AC Kerazyme® showed antioxidant activity, even at low levels

![ORAC Assay Graph]

**Figure 9.** Antioxidant capacity of AC Kerazyme®.
Novel ingredient, ideal to enhance straightening & improve curl retention

Natural & safe alternative to the Brazilian Temporary Hair Straightening Technique

Provides intense therapy to repair damage, which occurs from normal hair maintenance, such as washing & styling tools
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THANK YOU

For more information – Visit our website!
www.activeconceptsllc.com