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Tradename: ProCutiGen® Bond

Code: 20829

CAS #: 93384-40-8 & 1686112-10-6 (or) 84775-94-0 (or) 9015-54-7

Test Request Form #: 3258

Lot #: NC170116-K

Test Performed:

Scanning Electron Microscopy (SEM)

Methods & Materials

This study was conducted by salon professionals using Sensationnel Bare & Natural Brazilian 100% Virgin Remi Unprocessed Human Hair (Hair Zone Moonachie, NJ). One swatch, left unaltered, was analyzed as the control. Two test swatches were bleached alone with Pravana bleach, one with 30V and the other with 40V. Once the bleach processed, the swatches were washed and blown dry. The two treated swatches were treated as follows; Bleach (30V) + 2.0% **ProCutiGen® Bond** and Bleach (40V) +2.0% **ProCutiGen® Bond**. Once the bleach processed, the swatches were washed and blown dry.

Note: **ProCutiGen[®] Bond** was not mixed with the dry powder bleach alone, the developer must be added and mixed to a "butter cream" consistency before adding **ProCutiGen[®] Bond**.

Additionally, the same study was conducted by salon professionals using Sensationnel Bare & Natural Peruvian Jerry Bohemian 100% Virgin Remi Unprocessed Human Hair (Hair Zone Moonachie, NJ). One swatch, left unaltered, was analyzed as the control. The untreated swatch was relaxed using Silk Elements Regular Mega Silk Relaxer for 20 minutes. Once processed, the swatch was neutralized using Silk Elements Neutralizing Shampoo and then conditioned. The untreated swatch was hand dried ensuring downward air movement. The treated swatch was relaxed using Silk Elements Regular Mega Silk Relaxer + 2.0% **ProCutiGen® Bond**. After 20 minutes the relaxer was neutralized with Silk Elements Neutralizing Shampoo + 2.0% **ProCutiGen® Bond** and then conditioned. The treated swatch was also hand dried ensuring downward air movement. No additional styling was performed on the test swatches.

Gaston College Textile Technology Center located in Belmont, North Carolina was asked to perform Scanning Electron Microscopy Imaging (SEM) on the five hair swatches provided by Active Concepts, LLC. Gaston College used a Zeiss DSM 962 to perform the test at 20.0kV using a magnification range from 50x-300x. This method utilizes an electron microscope that produces images a chemically treated hair by scanning the hair with a focused beam of electrons. These electrons interact with the atoms of the hair sample to provide images of the hairs surface topography and surface composition.

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Results



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Discussion

Standard Electron Microscopy (SEM) imaging shows high resolution images of the hair cuticles of each hair swatch. The SEM images depict how the outermost layer of the hair, the cuticle, is effected by chemical treatments (bleach & relaxer). The SEM imaging demonstrates that, untreated virgin hair is clearly already prone to damage from everyday aggressors, showing characteristic signs of breakdown, pre chemical treatment. The treated alone imagery results depict an extensively damaged cuticle. This type of damage leads to irregular growth, breakages, and overall unhealthy, dead appearance. At a singular level, one cuticle may not seem important, but these strand to strand imperfections contribute to a much bigger picture of unhealthy and unprotected hair. When the untreated images are compared to both the **ProCutiGen® Bond** treated SEM images depict the creation of a de-novo cuticle on the damged cuticle. The cuticle corrects and acts as a protective cuticle to the fiber. The cuticle formation **ProCutiGen® Bond** employs also exhibits properties such as moisturization, pH balance, barrier protection, and additionally, protection from hair weakening after exposure to bleach rendering **ProCutiGen® Bond** the ideal addition to any bleach treatment or everyday treatment to repair and protect against everyday stressors.

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