



Hair Hydration via Gravimetric Analysis

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Tradename: PhytoCycle® Orange

Code: 16925

CAS #: 7732-18-5 & 84012-28-2 & 1686112-36-6 (or) 68333-16-4

Test Request Form #: 7067

Lot #: N200818K

Sponsor: Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092

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Test Performed:

Hair Hydration via Gravimetric Analysis

Introduction

A gravimetric analysis was performed in order to assess the hydrating ability of **PhytoCycle® Orange (16925)** on the hair. The purpose was to determine if **PhytoCycle® Orange** could provide comparable hair hydration to animal-derived keratin such as AC Keratin Hydrolysate 30 PF (20586PF).

Materials

- A. Untreated hair swatch
- B. 5.0% **PhytoCycle® Orange** (16925) treated hair swatch
- C. 5.0% AC Keratin Hydrolysate 30 PF (20586PF) treated hair swatch
- D. H₂O treated hair swatch
- E. Yamato constant temperature oven DKN402C @ 105°C
- F. Mettler Toledo precision balance ME103TE
- G. Medium size weigh trays

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Methods

Four hair swatches were collected, weighed, and then treated with either 5.0% **PhytoCycle® Orange**, 5.0% AC Keratin Hydrolysate 30 PF, H₂O, or nothing (untreated control). After treatment, hair swatches were weighed another time, and then placed into a constant temperature-drying oven for 1 hour at 105°C. When removed from the oven, the hair was allowed time to cool in a humidity-controlled chamber, and then weighed one last time. Hair hydration was determined by calculating the percent moisture per hair swatch.

Results

	Untreated Control	H ₂ O	5.0% PhytoCycle® Orange	5.0% AC Keratin Hydrolysate 30 PF
<i>Initial Mass</i>	0.880	0.843	0.892	0.874
<i>Initial Mass + Test Product</i>	0.880	1.712	1.782	1.717
<i>Final Mass</i>	0.796	0.765	0.952	0.929
<i>% Moisture</i>	-9.5%	-4.6%	3.4%	3.2%

Table 1. Percent Moisture by Gravimetric Analysis

Discussion

A gravimetric analysis was performed to determine the hair hydrating ability of **PhytoCycle® Orange** (16925) compared to animal-derived keratin, AC Keratin Hydrolysate 30 PF. The hydrating ability of an H₂O control and an untreated control were also performed. As demonstrated in Table 1. As demonstrated in Table 1, the untreated and H₂O control hair swatches both experienced a 9.5% and 4.6% loss of moisture, respectively.

Conversely, the hair swatches treated with **PhytoCycle® Orange** and AC Keratin Hydrolysate 30 PF both experienced moisture retention of 3.4% and 3.2%, respectively.

The results of this study indicate that **PhytoCycle® Orange** is capable of maintaining hair hydration comparable to animal-derived keratin, such as AC Keratin Hydrolysate 30 PF, after an equivalent and controlled drying time. Both materials provide enhanced hydration when compared to the untreated and H₂O controls. Overall, **PhytoCycle® Orange** is a suitable protein-free replacement for animal-derived keratin in finished formulas intended to promote hair hydration.

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