



Hair Hydration via Gravimetric Analysis

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Tradename: AC Vegan Keratin SF

Code: 20977

CAS #: 7732-18-5 & 90063-40-4 & 92113-26-3 & 225234-01-5

Test Request Form #: 8178

Lot #: N210406H

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

Study Director: Maureen Danaher

Principle Investigator: Kara Rivera

Test Performed:

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Introduction

A gravimetric analysis was performed in order to assess the hydrating ability of **AC Vegan Keratin SF (20977)** on the hair. The purpose was to determine if **AC Vegan Keratin SF** could provide comparable hair hydration to animal-derived keratin such as AC Keratin Hydrolysate 30 PF (20586PF).

Materials

- A. Untreated hair swatch
- B. 2.0% **AC Vegan Keratin SF (20977)** treated hair swatch
- C. 2.0% 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 2.0% **AC Vegan Keratin SF**, 2.0% AC Keratin Hydrolysate 30 PF, H₂O, or left as an untreated control. After treatment, hair swatches were weighed again, and then placed into a constant temperature-drying oven for 1 hour at 105°C. When removed from the oven, hair was given time to cool in a humidity-controlled chamber, and then weighed. Hair hydration was determined by calculating the percent moisture per hair swatch.

Results

AC Vegan Keratin SF demonstrated moisture retention abilities at a 2.0% concentration.

	Untreated Control	H₂O	2.0% AC Vegan Keratin SF	2.0% AC Keratin Hydrolysate 30 PF
Initial Mass	0.931	0.984	0.978	0.982
Initial Mass + Test Product	0.931	1.703	1.711	1.717
Final Mass	0.850	0.891	1.025	1.019
% Moisture	-8.7%	-5.4%	2.7%	2.2%

Table 1. Percent Moisture by Gravimetric Analysis

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Discussion

A gravimetric analysis was performed to determine the hair hydrating ability of **AC Vegan Keratin SF (20977)** 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, the untreated and H₂O control hair swatches experienced a 8.7% and 5.4% loss of moisture, respectively.

Conversely, the hair swatches treated with **AC Vegan Keratin SF** and AC Keratin Hydrolysate 30 PF both experienced moisture retention of 2.7% and 2.2%, respectively.

The results of this study indicate that **AC Vegan Keratin SF** 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, **AC Vegan Keratin SF** is a suitable replacement for animal-derived keratin in finished formulas intended to promote hair hydration.

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