



Hair Hydration via Gravimetric Analysis

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Tradename: AC Vegan Keratin OS

Code: 20964

CAS #: 68650-44-2 & 90063-40-4 & 92113-26-3 & 225234-01-5

Test Request Form #: 7193

Lot #: N200924B

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 **AC Vegan Keratin OS (20964)** on the hair. The purpose was to determine if **AC Vegan Keratin OS** could provide comparable hair hydration to animal-derived keratin such as AC Keratin Hydrolysate OS (20573).

Materials

- A. Untreated hair swatch
- B. 2.0% AC Vegan Keratin OS (20964) treated hair swatch
- C. 2.0% AC Keratin Hydrolysate OS (20573) treated hair swatch
- D. Isododecane treated hair swatch
- E. Yamato constant temperature oven DKN402C @ 105°C
- F. Mettler Toledo precision balance ME103TE
- G. Medium size weigh trays

Methods

Four hair swatches were collected, weighed, and then treated with equal amounts of either 2.0% **AC Vegan Keratin OS**, 2.0% AC Keratin Hydrolysate OS, Isododecane, or nothing (untreated control). After treatment, hair swatches were weighed another time, and then placed into a constant temperature-drying oven for 5 hours 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.

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Results

	Untreated Control	Isododecane	2.0% AC Vegan Keratin OS	2.0% AC Keratin Hydrolysate OS
<i>Initial Mass</i>	1.135	1.027	1.097	1.047
<i>Initial Mass + Test Product</i>	1.135	1.720	2.097	2.004
<i>Final Mass</i>	1.032	1.210	1.387	1.277
<i>% Moisture</i>	-9.1%	10.6%	13.9%	11.5%

Table 1. Percent Moisture by Gravimetric Analysis

Discussion

Leave-on hair oils help to promote hair hydration by sealing down cuticles and locking in moisture. A gravimetric analysis was performed to determine the hair hydrating ability of **AC Vegan Keratin OS** (20964) compared to animal-derived keratin, AC Keratin Hydrolysate OS.

The hydrating ability of an Isododecane control and an untreated control were also performed. As demonstrated in Table 1, the untreated control hair swatch experienced a 9.1% loss of moisture, while the hair swatch treated with the Isododecane base oil retained moisture by 10.6%.

The hair swatches treated with **AC Vegan Keratin OS** and AC Keratin Hydrolysate OS were able to further increase moisture retention by 13.9% and 11.5%, respectively.

The results of this study indicate that **AC Vegan Keratin OS** is capable of maintaining hair hydration comparable to animal-derived keratin, such as AC Keratin Hydrolysate OS, after an equivalent and controlled drying time. Both materials provide enhanced hydration when compared to the untreated and Isododecane controls. Hair oils work as occlusives by creating a physical barrier and preventing moisture from evaporating from the hair. Overall, **AC Vegan Keratin OS** is a suitable replacement for animal-derived keratin in finished formulas intended to promote hair hydration.