



Rinse-Off Moisturization Assay

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Tradename: AC PolyJackharides

Code: 20963

CAS #: 7732-18-5 & 93333-78-9

Test Request Form #: 6907

Lot #: N2008070

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

Study Director: Maureen Danaher

Principle Investigator: Kara Rivera

Test Performed:

Rinse-Off Moisturization Assay

Introduction

An *in-vivo* study was conducted over a period of three days to evaluate the moisturization benefits of **AC PolyJackharides** in a body wash formulation. 10 M/F subjects between the ages of 23-45 participated in the study. Results indicate that this material is capable of significantly increasing moisturization compared to the control.

The rinse off moisturization assay was conducted to assess the moisturizing ability of **AC PolyJackharides** in a body wash formulation.

Materials

A. Equipment: DermaLab Skin Combo (Hydration/ Moisture Pin Probe)

Methods

The moisture module provides information about the skin's hydration by measuring the conducting properties of the upper skin layers when subjected to an alternating voltage. The method is referred to as a conductance measurement and the output is presented in the unit of uSiemens (uS). A moisture pin probe is the tool used to gather hydration values.

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10 volunteers M/F between the ages of 23 and 45 and who were known to be free of any skin pathologies participated in this study. A Dermalab Corneometer was used to measure the moisture levels on the subject's volar forearms. The Corneometer is an instrument that measures the amount of water within the skin. The presence of moisture in the skin improves conductance therefore results in higher readings than dry skin. Therefore the higher the levels of moisture, the higher the readings from the Corneometer will be. Baseline moisturization readings were taken on day one of the study. The products used in the study included the control body wash, as well as the control body wash containing 5.0% AC PolyJackharides.

Body washes were applied to the treatment areas and rubbed in a circular motion for a 15-second cleansing period. Once washed, each treatment area was rinsed with warm water and patted dry with a paper towel. After the application, hydration measurements were recorded at 15 minutes, 1 hour, 8 hours and 24 hours. The body wash procedure and readings were repeated in succession for a total of 3 days. The formula used to calculate the percent change in moisture is:

$$\text{Percent (\%) Change} = \frac{\text{Average Moisture Value}_{T=15 \text{ minutes.etc}} - \text{Average Baseline Value}_{T=0}}{\text{Average Baseline Value}_{T=0}} \times 100$$

	INCI Name	% w/w
Water	Water	69.00%
Lathanol LAL Powder	Sodium Lauryl Sulfoacetate	10.00%
Alpha-Step PC-48	Sodium Methyl 2-Sulfolaurate (and) Disodium 2-Sulfolaurate	10.00%
Amphosol® HCG	Cocamidopropyl Betaine	7.00%
M15008 Leucidal Liquid	Leuconostoc/Radish Root Ferment Filtrate	4.00%

Table 1. Control Body Wash Formulation

Results

AC PolyJackharides showed high moisturizing capabilities at a 5.0% concentration after 15 minutes, 1 hour, 8 hours and 24 hours post application on Days 1, 2, and 3. Please note, each value is an average of three consecutive readings per test site, followed by an averaging of each reading per time point across all three days.

Average Moisture Readings	T = 0	T = 15 Minutes	T = 1 Hour	T = 8 Hours	T = 24 Hours
5.0% AC PolyJackharides in Body Wash	77.33	93.87	108.00	121.07	133.87
Control Body Wash	82.27	78.53	82.27	91.73	97.20
Untreated	87.73	78.80	84.00	95.60	87.33

Table 2. Average Moisture Readings Across All Three Days

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Moisturization Average Moisture Readings

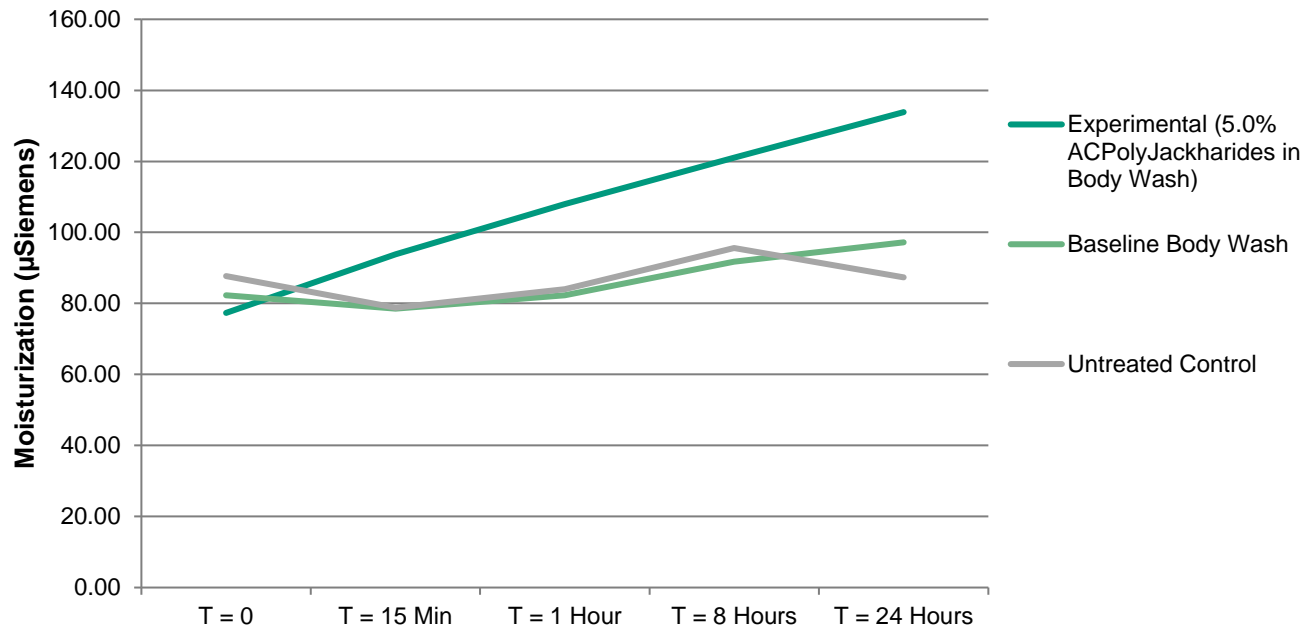


Figure 1. Average Moisture Readings Across All Three Days

Average Percent (%) Difference in Moisturization	T = 0	T = 15 Minutes	T = 1 Hour	T = 8 Hours	T = 24 Hours
Experimental (5.0% AC PolyJackharides in Body Wash) vs Base Body Wash	-5.73	19.94	31.24	32.00	38.20
Experimental (5.0% AC PolyJackharides in Body Wash) vs Untreated	-11.62	21.89	30.09	27.01	56.06
Base Body Wash vs Untreated	-5.75	1.95	-0.63	-3.60	14.71

Table 3. Average Percent (%) Difference In Moisturization Across All Three Days

Comparative Moisturization

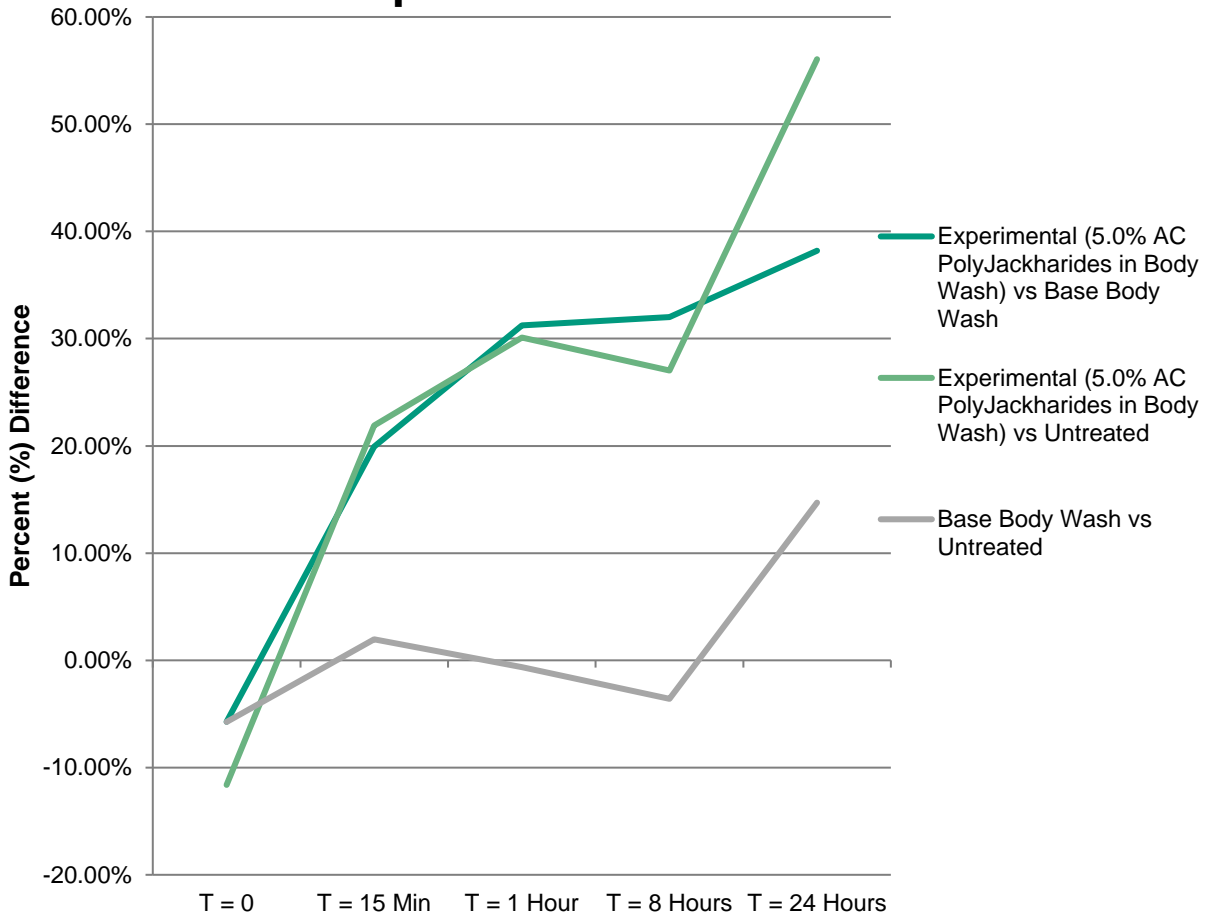


Figure 2. Comparative Moisture Averages between Test Sites at Each Time Point across All Three Days

Percent Difference at 1 Hour	5% AC Polyjackharides	Untreated Control
Mean	108	84
Variance	665.3793103	1565.793103
t Stat	2.782949357	
P(T<=t) two-tail	0.007581559	
t Critical two-tail	2.008559112	

Table 4. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Untreated Control At T = 1 Hour (n=30, $\alpha=0.5$, df=50)



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Percent Difference at 8 Hours	5% AC Polyjackharides	Untreated Control
Mean	121.0666667	95.6
Variance	793.3057471	1658.868966
t Stat	2.816806579	
P(T<=t) two-tail	0.006839891	
t Critical two-tail	2.006646805	

Table 5. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Untreated Control At T = 8 Hours (n=30, $\alpha=0.5$, df=52)

Percent Difference at 24 Hours	5% AC Polyjackharides	Untreated Control
Mean	133.8666667	87.33333333
Variance	1020.395402	1978.574713
t Stat	4.654132272	
P(T<=t) two-tail	2.21413E-05	
t Critical two-tail	2.005745995	

Table 6. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Untreated Control At T = 24 Hours (n=30, $\alpha=0.5$, df=53)

Percent Difference at 15 Minutes	5% AC Polyjackharides	Base Body Wash
Mean	93.86666667	78.53333333
Variance	528.2574713	653.7747126
t Stat	2.442769864	
P(T<=t) two-tail	0.017697407	
t Critical two-tail	2.002465459	

Table 7. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Base Body Wash At T = 15 Minutes (n=30, $\alpha=0.5$, df=57)

Percent Difference at 1 Hour	5% AC Polyjackharides	Base Body Wash
Mean	108	82.26666667
Variance	665.3793103	503.9264368
t Stat	4.121854249	
P(T<=t) two-tail	0.000123216	
t Critical two-tail	2.002465459	

Table 8. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Base Body Wash At T = 1 Hour (n=30, $\alpha=0.5$, df=57)

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Percent Difference at 8 Hours	5% AC Polyjackharides	Base Body Wash
Mean	121.0666667	91.73333333
Variance	793.3057471	515.2367816
t Stat	4.441484223	
P(T<=t) two-tail	4.35702E-05	
t Critical two-tail	2.004044783	

Table 9. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Base Body Wash At T = 8 Hours (n=30, α=0.5, df=55)

Percent Difference at 24 Hours	5% AC Polyjackharides	Base Body Wash
Mean	133.8666667	97.2
Variance	1020.395402	608.1655172
t Stat	4.976569269	
P(T<=t) two-tail	6.73202E-06	
t Critical two-tail	2.004044783	

Table 10. T-test Analysis Of The Moisture Percent Difference (%) Between **5% AC Polyjackharides** And Base Body Wash At T =24 Hours (n=30, α=0.5, df=55)

Discussion

As evidenced in an averaged 3-day rinse-off efficacy study of **AC PolyJackharides**, the experimental test site containing **5% AC PolyJackharides** had significantly higher moisture levels over time—30.09% after 1 hour, 27.01% after 8 hours, and 56.06% after 24 hours—than that of the untreated control (p=0.0076, p=0.0068, & p=2.21E-5, respectively) (Tables 4-6). When compared to the base body wash, the experimental containing **5% AC PolyJackharides** also saw significantly higher moisture levels each time point—19.94% after 15 minutes, 31.24% after 1 hour, 32.00% after 8 hours, and 38.20% after 24 hours (p=0.018, p=0.00012, p=4.36E-5, & p=6.73E-6, respectively) (Tables 7-10). Results indicate that **AC PolyJackharides** is capable of increasing moisturization over time when used in a rinse-off application.

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