

Tradename: ABS Apple AHA's

**Code:** 10286

CAS #: 7732-18-5 & 57-55-6 & 97-67-6 & 85251-63-4 & 79-14-1 & 50-21-5& 77-92-9

Test Request Form #: 269

Lot #: 37072

**Sponsor:** Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092 **Study Director:** Erica Segura **Principle Investigator:** Meghan Darley

<u>Test Performed:</u> Moisturization/ Hydration Assay

# Introduction

An *in-vivo* study was conducted over a period of three weeks to evaluate the moisturization benefits of **ABS Apple AHA's**. 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 Moisturizaiton Assay was conducted to assess the moisturizing ability of ABS Apple AHA's.

# **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.

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.

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Following initial measurements, all subjects were asked to apply 2 mg of each test material on their volar forearms. Measurements were taken immediately after application of test materials and then weekly for 3 weeks. The test material consisted of 2.0% **ABS Apple AHA's** in a base lotion.

For added perspective, measurements of an untreated test site and a site treated with a base lotion (Cetaphil Moisturizing for All Skin Types) were recorded.

#### Results

**ABS Apple AHA's** showed very high moisturizing capabilities at a 2.0% concentration. Please note, each value is an average of three consecutive readings per test site.

Moisturization		T = 0	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week	T = -2 Weeks
Panelist 1	Experimental	95	110	183	195	211	215	165	102	92
	Base Lotion	60	141	152	173	179	182	132	110	95
	Untreated	92	99	133	137	140	163	200	188	83
Panelist 2	Experimental	130	152	180	210	260	263	200	115	99
	Base Lotion	125	135	173	205	226	229	215	176	155
	Untreated	58	112	119	135	176	180	110	47	48
Panelist 3	Experimental	83	167	195	201	202	210	155	101	86
	Base Lotion	75	165	201	224	252	263	205	164	115
	Untreated	119	125	165	188	201	210	153	137	101
Panelist 4	Experimental	102	125	163	225	236	245	234	165	110
	Base Lotion	89	163	196	238	245	253	222	210	187
	Untreated	75	124	130	156	165	134	112	126	126
Panelist 5	Experimental	110	135	183	210	232	261	245	145	102
	Base Lotion	82	95	169	210	239	242	222	195	174
	Untreated	86	80	153	186	196	205	141	81	90
	Experimental	94	123	178	198	240	256	224	188	102
Panelist 6	Base Lotion	83	152	180	196	210	236	205	154	122
	Untreated	85	115	119	175	188	199	100	87	68
Panelist 7	Experimental	90	134	152	194	225	232	200	125	96
	Base Lotion	100	134	182	209	230	257	245	202	199
	Untreated	77	103	110	125	132	135	98	83	71
Panelist 8	Experimental	107	144	163	185	221	242	211	144	101
	Base Lotion	121	136	155	186	214	236	195	127	102
	Untreated	107	119	122	132	140	143	126	87	118
Panelist 9	Experimental	112	171	210	252	263	275	210	140	96
	Base Lotion	84	161	182	206	225	232	200	189	112
	Untreated	93	115	132	140	143	145	95	83	91
Panelist 10	Experimental	138	156	195	225	252	263	212	165	75
	Base Lotion	125	152	185	209	228	271	245	203	188
	Untreated	102	122	145	167	168	172	148	96	172
Number of Panelists		10	10	10	10	10	10	10	10	10

Chart 1. Panelist Moisturization Measurements

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Averages	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week
2.0% ABS Apple AHA's in Base Lotion	141.7	180.2	209.5	234.2	246.2	205.6	139
Base Lotion	143.4	177.5	205.6	224.8	240.1	208.6	173
Untreated	111.4	132.8	154.1	164.9	168.6	128.3	101.5

Chart 2. Average Moisture Increase and Regression Scores of Individual Test Sites

Percent (%) Change	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week
Base Lotion vs. Untreated	28.7	33.7	33.4	36.3	42.4	62.6	70.4
2.0% ABS Apple AHA's + Base Lotion vs. Untreated	27.2	35.7	35.9	42.0	46.0	60.2	36.9
2.0% ABS Apple AHA's in Base Lotion vs. Base Lotion	-1.2	1.5	1.8	4.2	2.5	-1.4	-19.6

Chart 3. Comparative Moisture Increase and Regression Scores Between Individual Test Sites



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# **Moisturization/Hydration Assay**

Figure 1. Average increase in moisturization per test site

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# Discussion

As evidenced in a 4 week efficacy study of **ABS Apple AHA's** on skin, moisture levels were improved by 27.2% after 24 hours and by 46.0% after 4 weeks when compared to the untreated control. Comparisons of the base lotion to the Experimental Lotion containing 2.0% **ABS Apple AHA's** demonstrate the experimental material moisturized the skin -1.2% better after 24 hours. After four weeks the base lotion containing 2.0% **ABS Apple AHA's** moisturized skin 2.5% better than the base lotion alone. Results indicate that **ABS Apple AHA** is capable of increasing moisturization when compared to both the untreated control as well as the base lotion.

Furthermore, when examining the moisture levels on the skin after application of test materials stopped, it was determined that **ABS Apple AHA** is capable of sustaining increased skin moisturization when compared to the skin site that remained untreated through the duration of the study. After 24 hours, the site testing 2.0% **ABS Apple AHA's + Base Lotion** was approximately 60.2% more moisturized than the site which did not receive treatment. After one week, the experimental test site was still yielding moisturization results that were 36.9% higher than the untreated site. Additionally, in comparison to the site tested with the base lotion alone, the site treated with 2.0% **ABS Apple AHA's + Base Lotion** moisturized the skin -1.4% better after 24 hours and was still -19.6% more effective in moisturizing the skin when reading were taken one week after the applications of both test materials ceased.

**ABS Apple AHA's** was designed to provide moisturizating benefits, however with the present study we can confirm that this succulent botanical ingredient is not only capable of providing protective benefits but also ideal for moisturizing and skin hydrating personal care applications.

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