



Moisturization/Hydration Assay

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Tradename: AC CytoPure PF

Code: 20757PF

CAS #: 999999-99-4

Test Request Form #: 1286

Lot #: NC130424-B

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

Study Director: Maureen Danaher

Principle Investigator: Jennifer Goodman

Test Performed:

Moisturization/Hydration Assay

Introduction

An *in-vivo* study was conducted over a period of three weeks to evaluate the moisturization benefits of **AC CytoPure PF**. 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 moisturization assay was conducted to assess the moisturizing ability of **AC CytoPure PF**.

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 4 weeks. The test material consisted of 2.0% **AC CytoPure PF** 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

AC CytoPure PF 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	93	122	149	196	195	189	160	126	85
	Base Lotion	32	76	102	118	124	132	55	61	54
	Untreated	83	76	73	122	133	152	72	65	63
Panelist 2	Experimental	117	155	158	177	198	200	145	131	95
	Base Lotion	128	225	201	201	272	283	120	129	110
	Untreated	106	112	134	80	121	125	55	93	30
Panelist 3	Experimental	125	186	216	245	288	295	210	156	86
	Base Lotion	133	165	200	225	245	256	30	10	9
	Untreated	95	110	136	156	166	188	120	96	50
Panelist 4	Experimental	68	142	160	166	177	180	95	80	71
	Base Lotion	79	148	154	161	166	172	65	88	69
	Untreated	61	60	86	51	56	60	53	47	57
Panelist 5	Experimental	82	90	159	176	188	190	112	85	71
	Base Lotion	54	83	97	129	131	135	90	63	45
	Untreated	74	55	101	103	60	63	60	30	86
Panelist 6	Experimental	48	85	104	108	110	121	85	65	55
	Base Lotion	79	82	95	99	104	107	100	92	83
	Untreated	39	51	42	75	74	71	65	55	41
Panelist 7	Experimental	120	148	153	172	176	180	155	132	82
	Base Lotion	92	124	164	167	168	180	96	84	82
	Untreated	151	139	145	137	142	146	136	122	113
Panelist 8	Experimental	105	186	249	301	315	330	215	196	92
	Base Lotion	110	125	225	230	286	291	301	206	55
	Untreated	85	100	193	200	210	215	185	113	65
Panelist 9	Experimental	111	179	198	201	210	225	180	93	56
	Base Lotion	51	110	133	145	156	188	163	140	63
	Untreated	108	112	118	119	125	127	115	83	53
Panelist 10	Experimental	166	254	285	286	289	310	210	95	48
	Base Lotion	154	163	173	183	215	222	193	93	45
	Untreated	126	127	125	123	129	127	104	63	55
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% AC CytoPure PF + Base Lotion	154.7	183.1	202.8	214.6	222.0	156.7	115.9
Base Lotion	130.1	154.4	165.8	186.7	196.6	121.3	96.6
Untreated	94.2	115.3	116.6	121.6	127.4	96.5	76.7

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	38.1	33.9	42.2	53.5	54.3	25.7	25.9
2.0% AC CytoPure PF + Base Lotion vs. Untreated	64.2	58.8	73.9	76.5	74.3	62.4	51.1
2.0% AC CytoPure PF + Base Lotion vs. Base Lotion	18.9	18.6	22.3	14.9	12.9	29.2	19.9

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

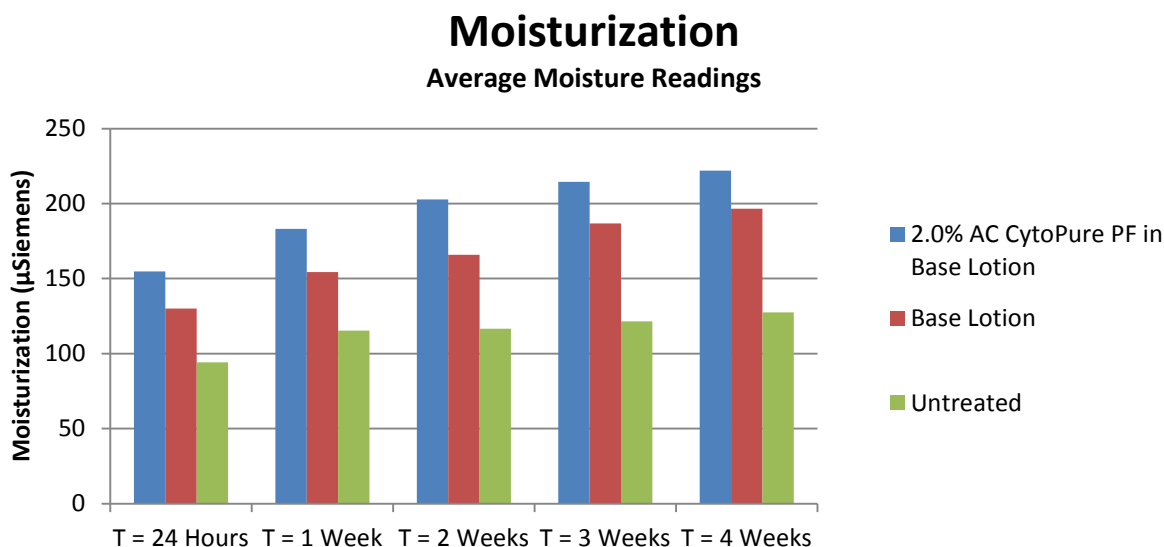


Figure 1. Average increase in moisturization per test site

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Comparative Moisturization

Percent (%) Difference Between Test Sites

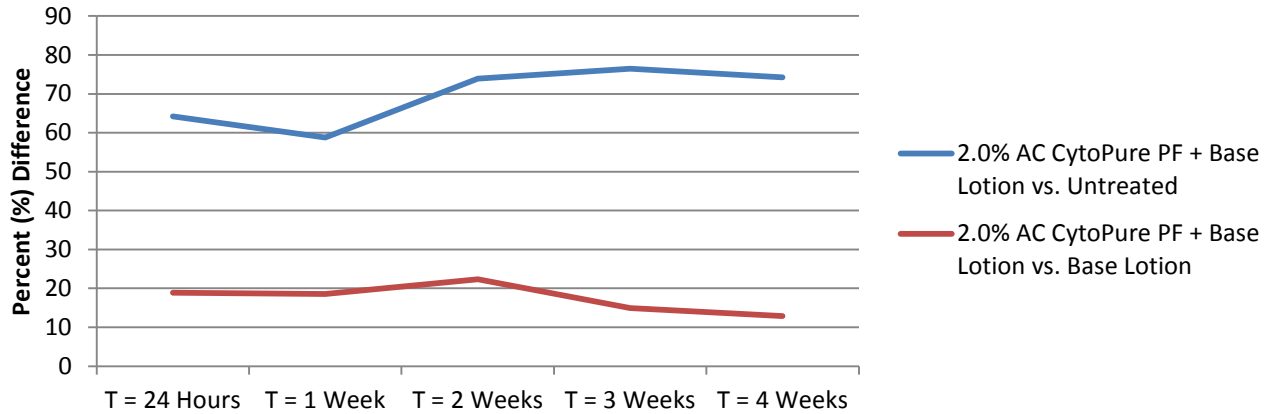


Figure 2. Percent difference in moisturization between two test sites over four weeks

Moisture Regression

Experimental Treatment vs. Untreated

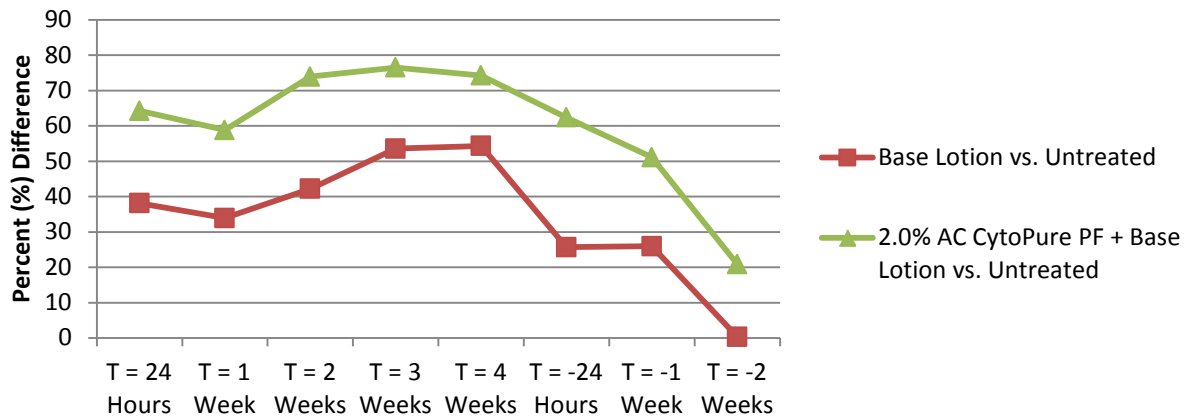


Figure 3. Regression in skin moisturization after application of experimental and base lotion material ceased



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Discussion

As evidenced in a 4 week efficacy study of **AC CytoPure PF** on skin, moisture levels were improved by 64.2% after 24 hours and by 74.3% after 4 weeks when compared to the untreated control. Comparisons of the base lotion to the Experimental Lotion containing 2.0% **AC CytoPure PF** demonstrate the experimental material moisturized the skin 18.9% better after 24 hours. After four weeks the base lotion containing 2.0% **AC CytoPure PF** moisturized skin 12.9% better than the base lotion alone. Results indicate that **AC CytoPure PF** 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 **AC CytoPure PF** 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% **AC CytoPure PF + Base Lotion** was approximately 62.4% more moisturized than the site which did not receive treatment. After one week, the experimental test site was still yielding moisturization results that were 51.1% higher than the untreated site. Additionally, in comparison to the site tested with the base lotion alone, the site treated with 2.0% **AC CytoPure PF + Base Lotion** moisturized the skin 29.2% better after 24 hours after and was still 19.9% more effective in moisturizing the skin when readings were taken one week after the applications of both test materials ceased.

AC CytoPure PF was designed to provide moisturization benefits, however with the present study we can confirm that this ingredient is not only capable of providing protective benefits but also ideal for moisturizing and skin hydrating personal care applications.