



## Moisturization/Hydration Assay

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**Tradename:** Phytofuse Rejuvenate®

**Code:** 16882

**CAS #:** 93384-40-8

**Test Request Form #:** 995

**Lot #:** NC140105-A

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

**Study Director:** Erica Segura

**Principle Investigator:** Maureen Danaher

**Test Performed:**

Moisturization/ Hydration Assay

### Introduction

An *in-vivo* study was conducted over a period of four weeks to evaluate the moisturization benefits of **Phytofuse Rejuvenate®**. 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 **Phytofuse Rejuvenate®**.

### 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.

Ten 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 24 hours after application of test materials and then weekly for 4 weeks. The test material consisted of 2.0% **Phytofuse Rejuvenate®** 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

**Phytofuse Rejuvenate®** 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 = 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	118	150	211	229	235	200	116	100
	Base Lotion	109	115	192	184	191	115	77	75
	Untreated	91	99	97	101	100	97	98	80
Panelist 2	Experimental	153	200	261	280	350	300	140	100
	Base Lotion	185	200	250	250	300	175	160	110
	Untreated	110	106	92	100	105	110	109	95
Panelist 3	Experimental	150	259	300	310	340	270	200	180
	Base Lotion	105	200	216	210	225	200	150	140
	Untreated	120	209	215	200	230	170	160	150
Panelist 4	Experimental	118	272	280	290	300	210	100	75
	Base Lotion	160	193	190	179	180	150	77	50
	Untreated	72	117	110	73	90	85	70	60
Panelist 5	Experimental	125	190	198	207	219	140	77	60
	Base Lotion	100	173	168	165	150	110	60	55
	Untreated	120	118	164	170	122	115	109	100
Panelist 6	Experimental	96	150	184	210	280	200	75	45
	Base Lotion	80	173	168	160	165	100	86	70
	Untreated	67	129	150	155	175	95	80	75
Panelist 7	Experimental	187	201	220	243	269	200	116	84
	Base Lotion	99	124	155	184	191	115	83	79
	Untreated	110	116	124	139	130	117	95	90
Panelist 8	Experimental	171	194	199	212	232	165	140	130
	Base Lotion	185	200	250	250	300	175	160	154
	Untreated	112	108	106	100	105	108	109	102
Panelist 9	Experimental	172	194	254	310	340	250	200	175
	Base Lotion	105	200	216	210	225	200	150	140
	Untreated	108	100	95	106	108	95	87	85
Panelist 10	Experimental	118	272	280	290	300	210	100	75
	Base Lotion	160	193	190	179	180	150	77	80
	Untreated	118	117	120	125	132	128	119	111
Number of Panelists		10	10	10	10	10	10	10	10

**Chart 1.** Panelist Moisturization Measurements

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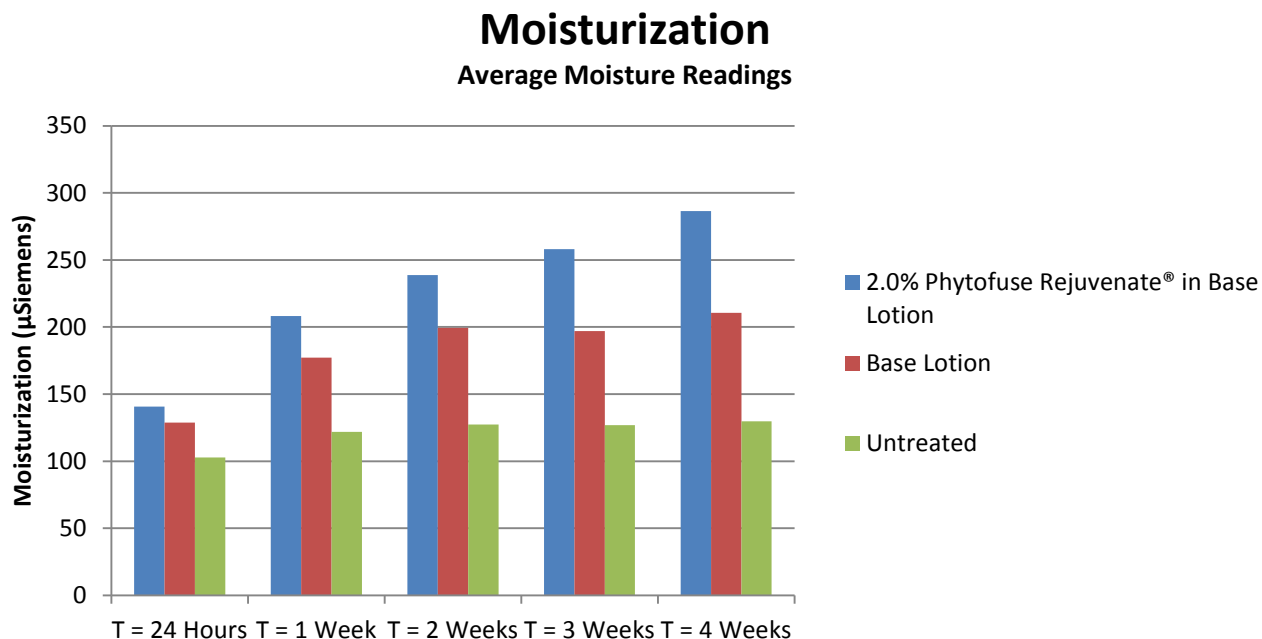
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Averages	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks	T = -24 Hours	T = -1 Week
2.0% Phytofuse Rejuvenate® in Base Lotion	140.8	208.2	238.7	258.1	286.5	214.5	126.4
Base Lotion	128.8	177.1	199.5	197.1	210.7	149.0	108.0
Untreated	102.8	121.9	127.3	126.9	129.7	112.0	103.6

**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	25.29	45.28	56.72	55.32	62.45	33.04	4.25
2.0% Phytofuse Rejuvenate® + Base Lotion vs. Untreated	36.96	70.79	87.51	103.34	120.89	91.52	22.01
2.0% Phytofuse Rejuvenate® in Base Lotion vs. Base Lotion	9.32	17.56	19.65	30.95	35.98	43.96	17.04

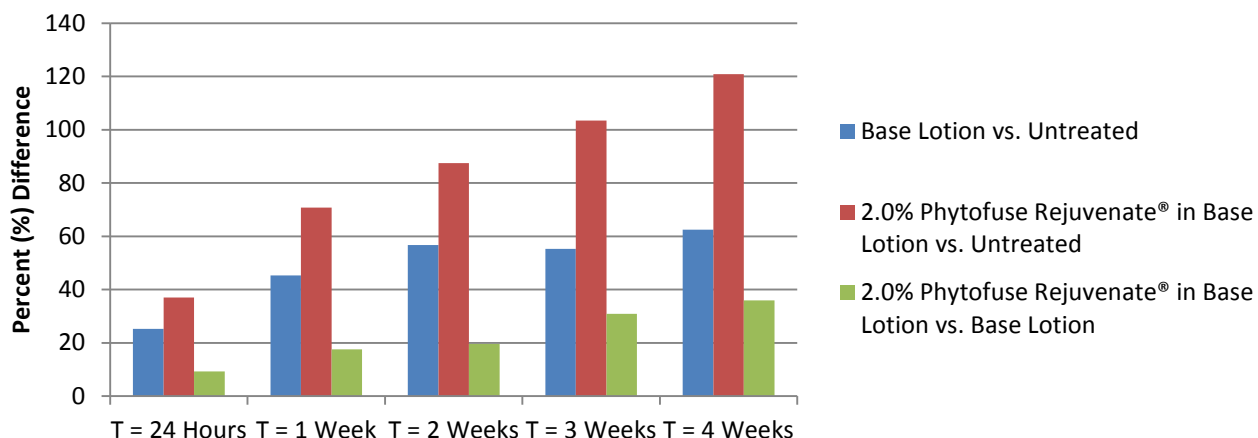
**Chart 3.** Comparative Moisture Increase and Regression Scores Between Individual Test Sites



**Figure 1.** Average increase in moisturization per test site

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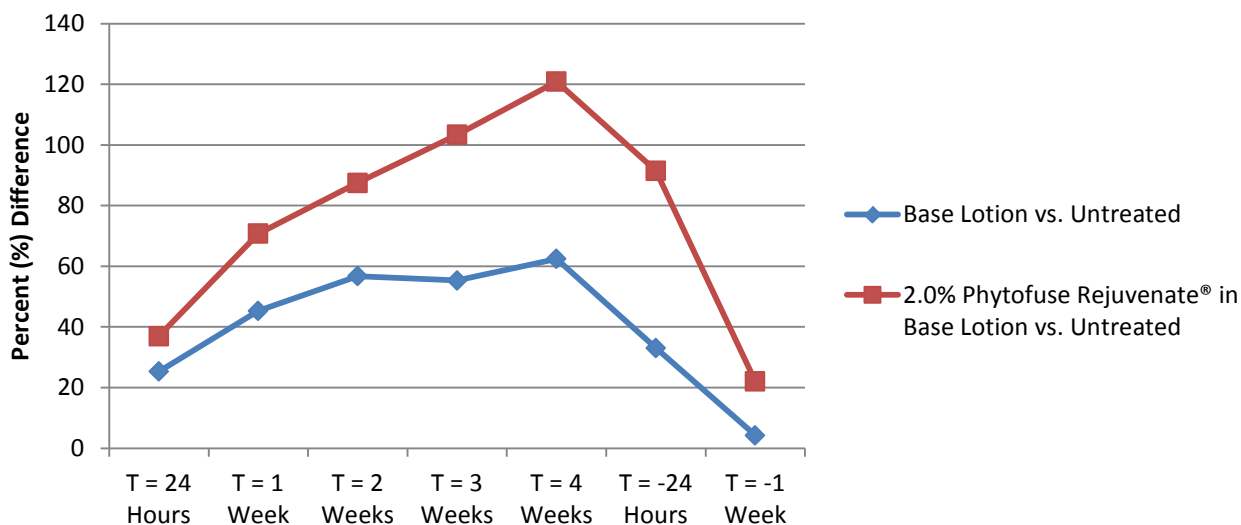
## Comparative Moisturization



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

## Moisture Regression

### Experimental and Base Lotion 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 **Phytofuse Rejuvenate®** on skin, moisture levels were improved by 36.96% after 24 hours and by 120.89% after 4 weeks when compared to the untreated control. Comparisons of the base lotion to the Experimental Lotion containing 2.0% **Phytofuse Rejuvenate®** demonstrate the experimental material moisturized the skin 9.32% better after 24 hours. After four weeks the base lotion containing 2.0% **Phytofuse Rejuvenate®** moisturized skin 35.98% better than the base lotion alone. Results indicate that **Phytofuse Rejuvenate®** 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 **Phytofuse Rejuvenate®** 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% **Phytofuse Rejuvenate® + Base Lotion** was approximately 91.52% more moisturized than the site which did not receive treatment. After one week, the experimental test site was still yielding moisturization results that were 22.01% higher than the untreated site. Additionally, in comparison to the site tested with the base lotion alone, the site treated with 2.0% **Phytofuse Rejuvenate® + Base Lotion** moisturized the skin 43.96% better after 24 hours after and was still 17.04% more effective in moisturizing the skin when readings were taken one week after the applications of both test materials ceased.

**Phytofuse Rejuvenate®** 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.

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