

Tradename: AC Dermal Respiratory Factor PF

Code: 20219PF

CAS #: 7732-18-5 & 8013-01-2

Test Request Form #: 811

Lot #: NC140218-A

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

Study Director: *Erica Segura*

Principle Investigator: *Meghan Darley*

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 Dermal Respiratory Factor (DRF) Advanced 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 Dermal Respiratory Factor (DRF) PF**.

Assay Principle

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.

Materials

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

Methods

10 M/F volunteers 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.

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% **AC Dermal Respiratory Factor Advanced 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 Dermal Respiratory Factor Advanced 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.

Table 1. Average Moisture Increase and Regression Scores of Individual Test Sites

Averages	T = 0	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Experimental (2.0% AC DRF Advanced PF + Base Lotion)	100	158	164	188	224	229
Base Lotion	94	141	145	152	175	172
Untreated	92	109	108	110	124	118

Figure 2. Comparative Moisture Increase and Regression Scores Between Individual Test Sites

Percent (%) Change	T = 0	T = 24 Hours	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Base Lotion vs. Untreated	2	29	35	38	41	46
Experimental (2.0% AC DRF Advanced PF + Base Lotion) vs. Untreated	9	45	53	70	80	95
Experimental (2.0% AC DRF Advanced PF + Base Lotion) vs. Base Lotion	6	12	13	23	28	34

Moisturization Average Moisture Readings

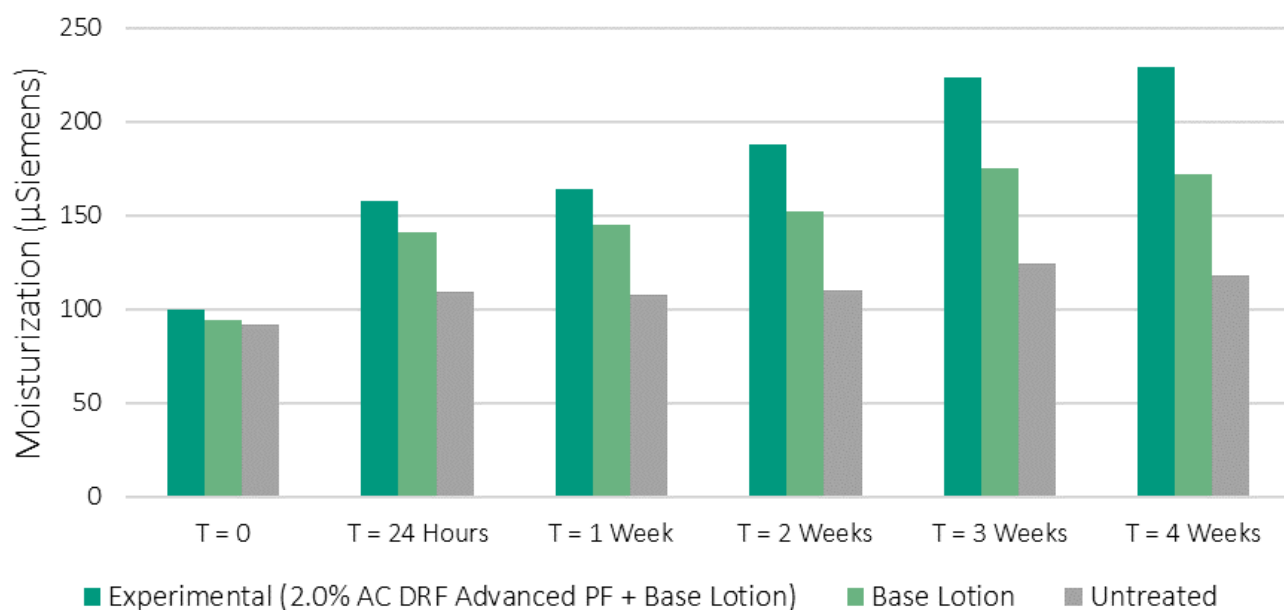


Figure 1. Average increase in moisturization per test site

Moisturization Percent Difference

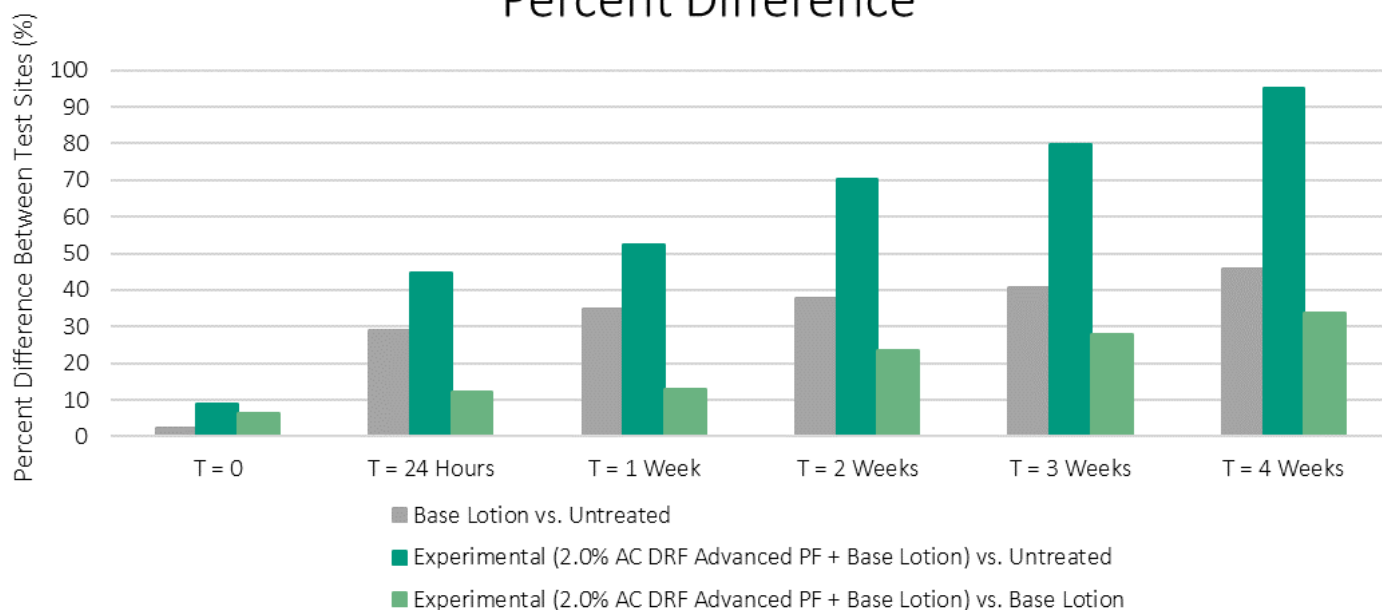


Figure 2. Percent difference in moisturization between two test sites over four weeks

Moisture Regression Experimental Treatment vs. Untreated

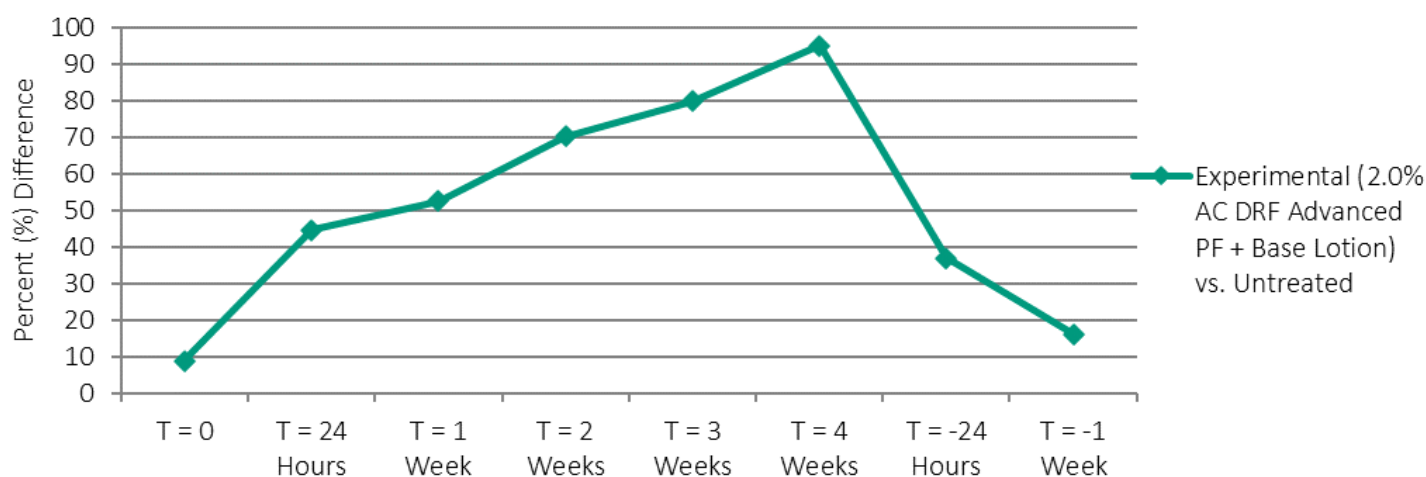


Figure 3. Regression in skin moisturization after application of experimental material ceased

Discussion

As evidenced in a 4-week efficacy study of **AC Dermal Respiratory Factor Advanced PF** on skin, moisture levels were improved by 44.60% after 24 hours and by 95% after 4 weeks when compared to the untreated control. When compared to the base cream **AC DRF Advanced PF** improved moisturization by 12% and after 4 weeks **AC DRF Advanced PF** improved moisturization by 34%. Results indicate that **AC Dermal Respiratory Factor Advanced 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 Dermal Respiratory Factor Advanced 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 DRF Advanced PF + Base Lotion** was approximately 37% more moisturized than the site which received no treatment. After one week, the experimental test site was still yielding moisturization results that were 16% higher than the untreated site. Additionally, in comparison to the site tested with the base lotion alone, the site treated with **2.0% AC DRF Advanced PF + Base Lotion** moisturized the skin 20% better after 24 hours and was still 9% more effective in moisturizing the skin when readings were taken one week after the applications of both test materials ceased.

The present study confirms that **AC Dermal Respiratory Factor Advanced PF** is not only capable of providing functional benefits, but it is also capable of providing moisturizing and skin hydrating benefits when added to cosmetic applications.