



# High Resolution Ultrasound Skin Imaging Assay

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**Tradename:** AC Moisture-Plex Advanced PF

**Code:** 16503PF

**CAS #:** 56-81-5 & 7732-18-5 & 28874-51-3 & 57-13-6 & 99-20-7 & 125275-25-4 & 9067-32-7

**Test Request Form #:** 812

**Lot #:** 34038

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

**Study Director:** Erica Segura

**Principle Investigator:** Meghan Darley

**Test Performed:**

High Resolution Ultrasound Skin-Imaging Assay

## Introduction

An *in-vivo* study was conducted over a period of four weeks to evaluate the effect on skin density of **AC Moisture-Plex 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 improving skin density compared to the control.

## Materials

A. Equipment: DermaLab Skin Combo (Ultrasound Probe)

## Methods

Ultrasound skin imaging is based on measuring the acoustic response after an acoustic pulse is sent into the skin. The energy of the acoustic pulse is low and will not affect the skin in any way. When the acoustic pulse is emitted and hits different areas of the skin, part of the pulse will be reflected and part will be transmitted further into the skin. The reflected signal travels back and is picked up by the ultrasound transducer. After processing the signal, a cross-sectional image appears on the screen. This image represents an intensity, or amplitude, analysis of the signals.

The intensity of the signals that are received refer to a color scale. Dark colors represent areas of the skin with low reflection. This means that there are no changes or very small changes in density between the structures in the skin. Bright colors represent areas with strong reflections, signifying substantial changes in density between structures.

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. The DermaLab ultrasound probe was used to determine the skin density of the subject's volar forearms. Baseline elasticity 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% **AC Moisture-Plex 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

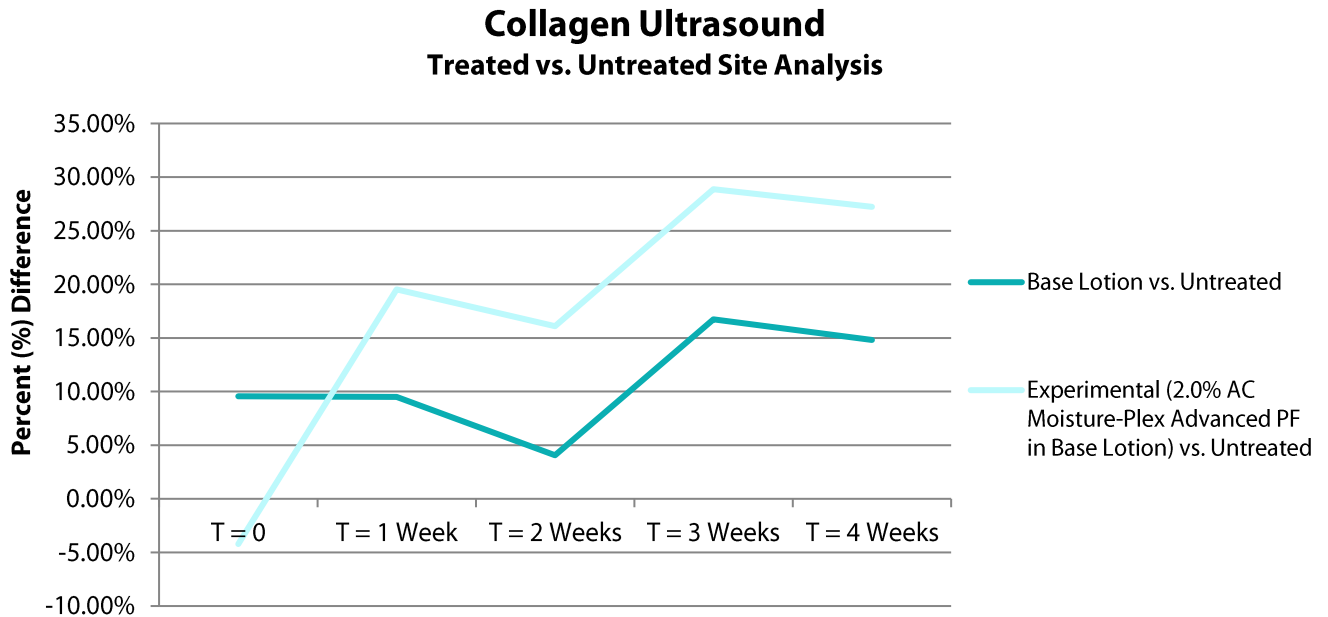
**AC Moisture-Plex Advanced PF** showed improvements in skin density at a 2.0% concentration. Please note, each value is an average of three consecutive readings per test site.

Averages	T = 0	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Experimental (2.0% AC Moisture-Plex Advanced PF in Base Lotion)	68.10	83.38	85.78	88.00	87.78
Base Lotion	77.90	76.38	76.89	79.71	79.22
Untreated	71.10	69.75	73.89	68.29	69.00

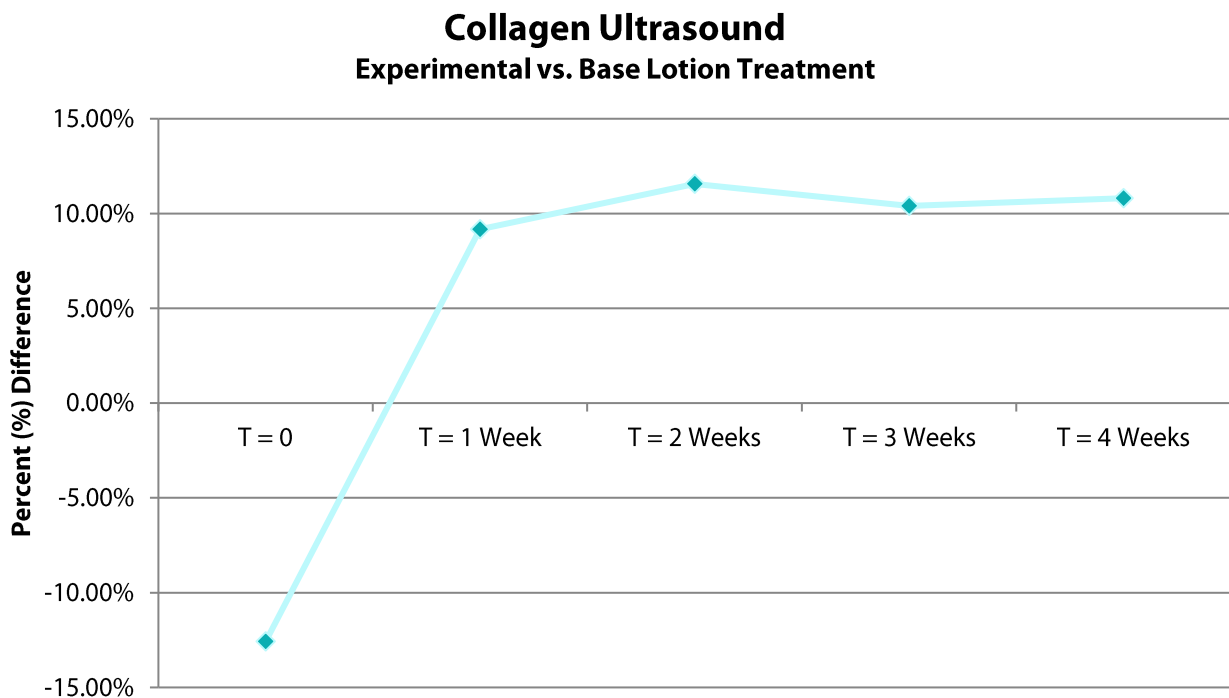
Chart 1. Average Increase in Skin Density per Individual Test Site

Percent (%) Change	T = 0	T = 1 Week	T = 2 Weeks	T = 3 Weeks	T = 4 Weeks
Base Lotion vs. Untreated	9.56%	9.50%	4.06%	16.74%	14.81%
Experimental (2.0% AC Moisture-Plex Advanced PF in Base Lotion) vs. Untreated	-4.22%	19.53%	16.09%	28.87%	27.21%
Experimental (2.0% AC Moisture-Plex Advanced PF in Base Lotion) vs. Base Lotion	-12.58%	9.17%	11.56%	10.39%	10.80%

Chart 2. Comparison of Skin Density Changes between Two Test Sites



**Figure 1:** Ultrasound Results Comparing Test Sites to Untreated Site



**Figure 2:** Ultrasound Results Comparing the Difference between the Test Site and the Control Site



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### Discussion

As evidenced in a 4 week efficacy study of **AC Moisture-Plex Advanced PF** on skin, skin density was improved by 19.53% after one week and by 27.21% after 4 weeks when compared to the untreated control. When compared to the base cream **AC Moisture-Plex Advanced PF** improved skin density during each week of the trial, working 11.56% better than the base lotion after two weeks and 10.80% better than the base lotion after four weeks. Results indicate that **AC Moisture-Plex Advanced PF** is capable of improving skin density when compared to both the untreated control as well as the base lotion.

**AC Moisture-Plex Advanced PF** has a strong positive effect on skin's density when used at recommended use levels.