

Tradename: AC PomeaShield

Code: 16935

CAS #: 7732-18-5 & 84961-57-9 & 1686112-36-6 (or) 68333-16-4

Test Request Form #: 10113

Lot#: 9394242

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

Study Director: *Maureen Drumwright*

Principle Investigator: *Kayla Patterson*

Test Performed:

DermaLab Combo & Sebum Collecting Strips

Introduction

Sebum is the oily secretion of the sebaceous glands, which can make skin look visibly shiny throughout the day. Decreasing shine on the skin is an important attribute in many cosmetic applications including color cosmetics such as base lotions. An *in-vivo* study was conducted to evaluate the ability of **AC PomeaShield** to reduce facial sebum when incorporated into a base lotion. Results indicate that this material is capable of decreasing sebum production throughout the day, and subsequently decreasing visible shine on the skin.

Materials

- A. **Equipment:** DermaLab Skin Combo & Sebum Collecting Strips; VISIA Complexion Analysis System (Canfield Scientific., Fairfield, NJ, USA)
- B. **Base Lotion:** Simple® Mini Hydrating Light Moisturizer

Methods

The DermaLab Skin Combo & Sebum Collecting Strips provide information about the skin's sebum which can be directly linked to shine perceived on the skin. Additionally, photographic assessments were performed using the VISIA Complexion Analysis System (Canfield Scientific., Fairfield, NJ, USA). The VISIA System, with a configurable head support, ensured consistent positioning of each subject's head. The photographic images were captured with standard, cross-polarized, parallel polarized, and ultraviolet light. Images were analyzed for luminosity using ImageJ software.

Twenty female/male volunteers between the ages of 22 and 40 who were known to be free of any skin pathologies and had Fitzpatrick skin types I to III participated in this study (Table 1). The base lotion was placed on the one side of the face as the control while the other side was treated with the base lotion containing **AC PomeaShield**, this was determined randomly. A Dermalab skin combo with sebum collecting strips was used to measure the sebum levels on the subject's forehead, nose, and chin at baseline and after 6 hours. The sebum collecting strips were applied for 15 seconds to collect surface sebum from the participants tested areas in which the Dermalab Skin Combo then measured the amount of sebum and assigned a value. Each location was measured twice and an average was recorded.

The presence of sebum on the skin results in higher readings than sebum lacking skin. Therefore, the higher the levels of sebum, the higher the readings from the DermaLab will be and the more shine we expect to see on the skin. Baseline sebum readings were taken at the start of the study. Each participant was asked to classify their skin type on a scale of 1 (extremely dry) -10 (extremely oily).

Table 1. The Fitzpatrick Classification of Skin Types Chart¹.

Fitzpatrick Skin Type Descriptions*	
Skin Type	Description
I	Always burns, never tans
II	Burns easily, tans minimally
III	Burns moderately, tans to light brown
IV	Burns minimally, tans to moderate brown
V	Rarely burns, tans to dark
VI	Never burns, least sensitive to changes

*Adapted from The Surgeon General's Call to Action to Prevent Skin Cancer

Results

AC PomeaShield exhibited sebum-reducing results alone at a 2.0% concentration.

Percent change in sebum is calculated by the following formula:

$$\text{Percent (\%) Change} = \frac{\text{Average Sebum Value}_{T=6 \text{ hours}} - \text{Average Baseline Value}_{T=0}}{\text{Average Baseline Value}_{T=0}} \times 100$$

Table 2. Average Self-Assessment Rating of Participants (n=20).

Self-Assessment Rating 1 (very dry) – 10 (very oily)	
Average	5.6

Table 3. Average Sebum Readings for Individual Test Sites.

Averages	Forehead		Nose		Chin	
	T = 0	T = 6 Hours	T = 0	T = 6 Hours	T = 0	T = 6 Hours
Experimental (AC PomeaShield + Base Lotion)	40.4	35.2	32.6	27.8	8	7.33
Base Lotion		41.2		31.8		8.2

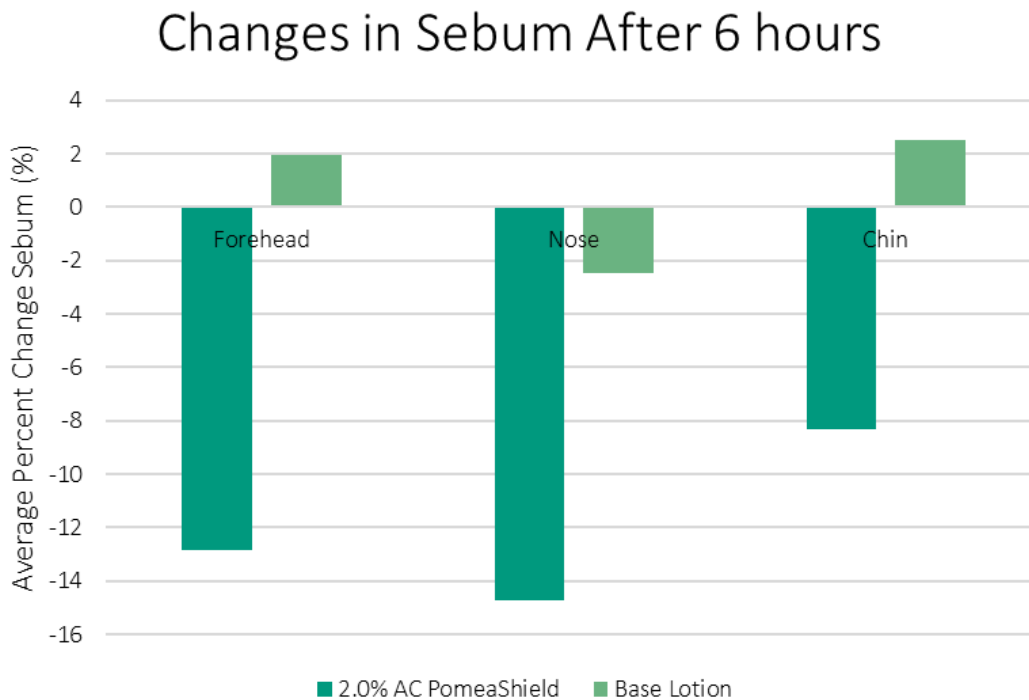


Figure 1. Change in Sebum after 6 hours at Each Test Site for Each Test Material.

Table 4. Percent Difference between 2.0% AC PomeaShield and base lotion after 6 hours. T-test Analysis of Sebum Percent Change on the Forehead, Nose, and Chin after 6 hours (n=60, $\alpha=0.05$, df=59).

	Forehead	Nose	Chin
Percent Difference (%)	16%	13%	11%
P(T<=t) two-tail	0.001	0.03	0.02

Changes in Sebum For Overall Face

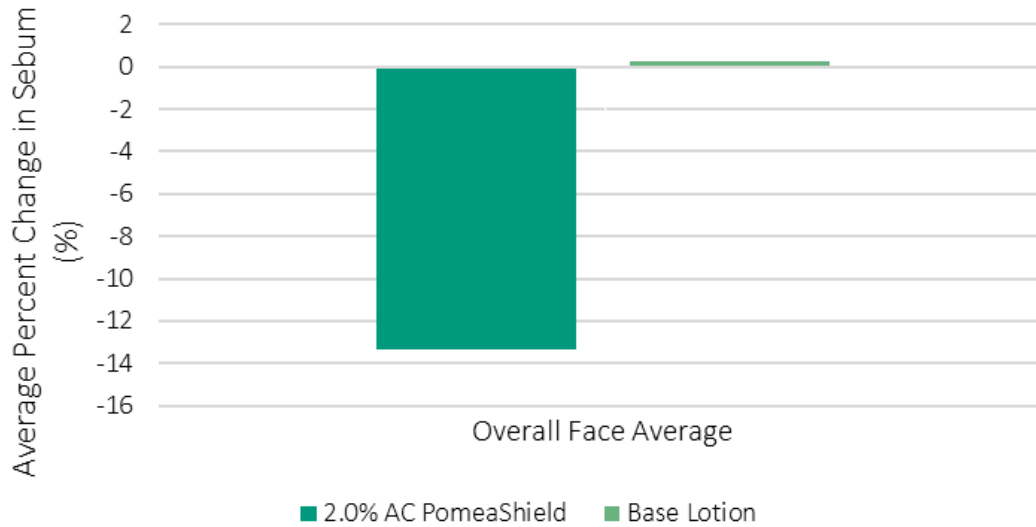


Figure 2. Change in Sebum after 6 hours for the Overall Face for Each Test Material.

Table 5. T-test Analysis of Sebum Percent Change on the Overall Face between Baseline and T=6 Hours of 2.0% AC PomeaShield (n=20, $\alpha=0.05$, df=33).

	T = 0	T= 6 Hours
Mean	40.4	35.2
Variance	30.98	67.95
t Stat	2.33	
P(T<=t) two-tail	0.0256	
t Critical two-tail	2.034	

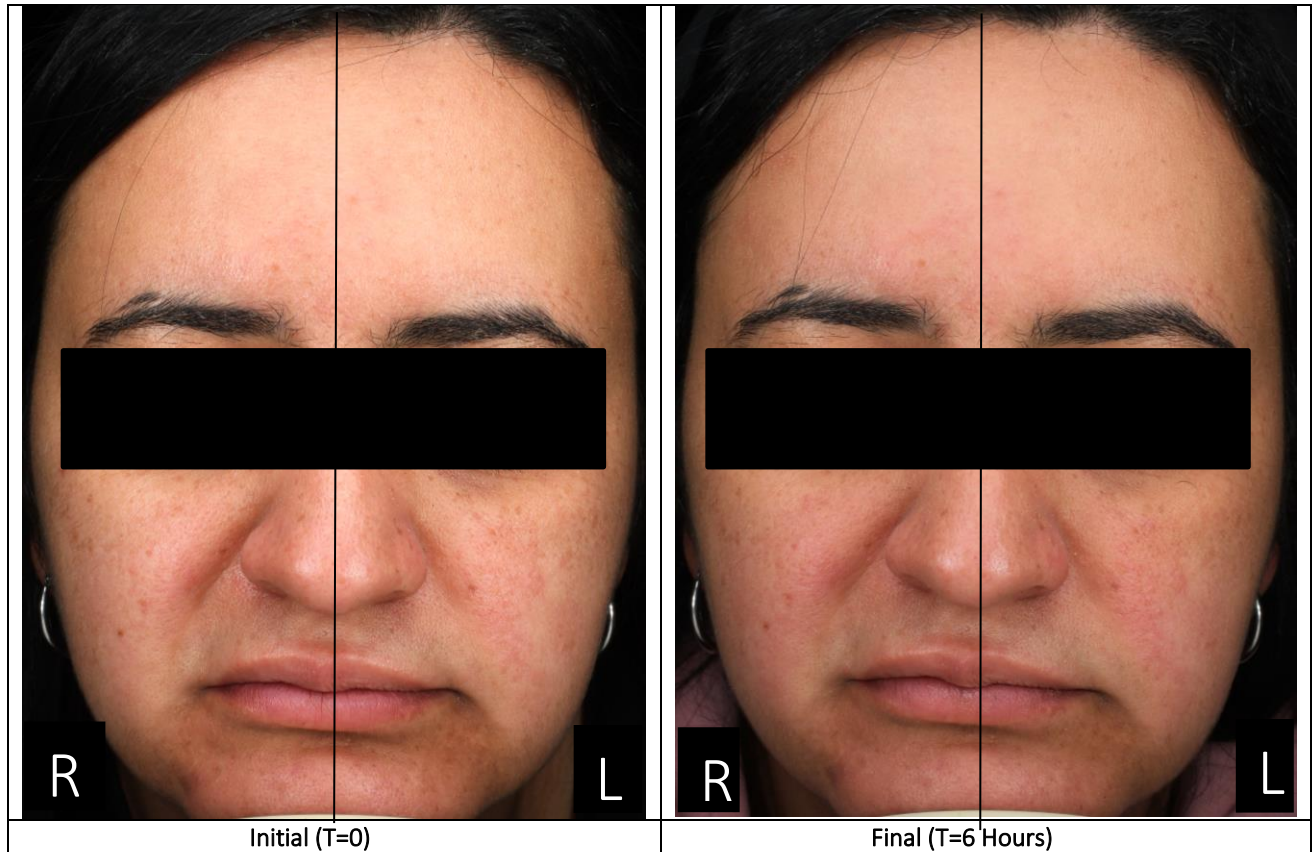


Figure 3. VISIA Images of Participant 2 Over Time (Right Side (R) = Base Lotion, left side (L) = 2.0% AC PomeaShield).

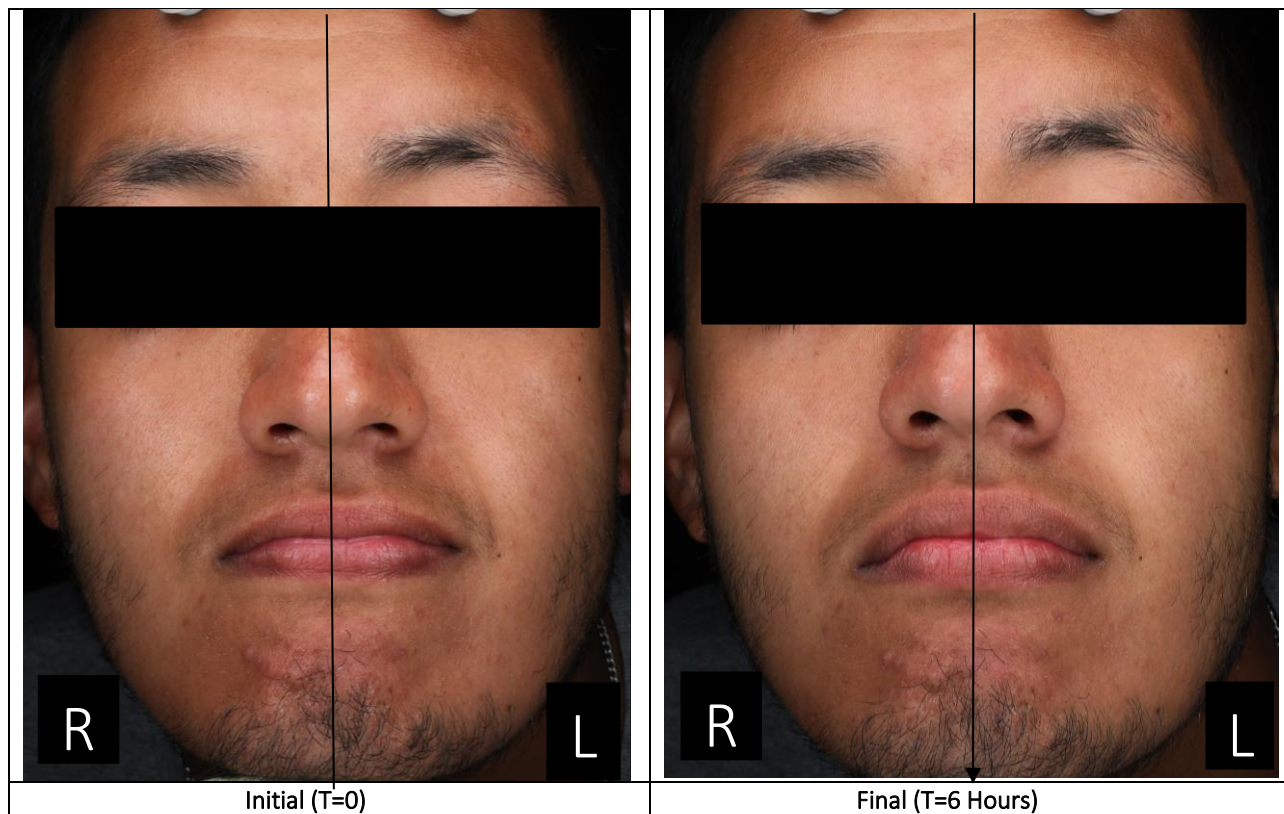


Figure 4. VISIA Images of Participant 3 Over Time (Right Side (R) = 2.0% AC PomeaShield, left side (L) = Base Lotion).

Discussion

The base lotion containing 2.0% **AC PomeaShield** was able to reduce sebum production and decrease visible shine on the skin. As shown in Tables 3 and 4, the side of the face containing 2.0% **AC PomeaShield** in a base lotion had lower average sebum levels than the base alone over the course of the day in all areas (forehead, nose, and chin). On the foreheads of participants, test sites treated with the experimental base lotion displayed a 13% decrease in sebum after 6 hours, whereas the same site treated with the control had an increase of 2% (Figure 1). Similarly, the nose and chin areas exhibited decreased sebum levels of 15% and 8%, respectively, on the side where the **AC PomeaShield** was applied (Figure 1). The same areas containing the base lotion alone saw a 2% decrease and a 3% increase in sebum after 6 hours, respectively (Figure 1). Additionally, when compared to the base lotion alone after 6 hours, 2.0% **AC PomeaShield** had 16%, 13% and 11% lower sebum levels on the forehead, nose, and chin, respectively (Figure 1, Table 4). After six hours, the side containing the experimental product saw an overall significant decrease in sebum levels of 12% (Figure 2, Table 5). Furthermore, the VISIA images of participants demonstrated visually less shine after 6 hours of wear on the side of the face containing the experimental product (Figure 3 & Figure 4).

Overall, 2.0% **AC PomeaShield** in a base base lotion was more effective at decreasing sebum levels as compared to the base lotion alone as evidenced by this six-hour efficacy study. When used at appropriate levels the **AC PomeaShield** may be capable of decreasing sebum production and ultimately reduce shine on the skin. In conclusion, utilizing the **AC PomeaShield** at recommended use levels prevents acne and clogged pores by reducing sebum levels.

References

1. Sharma AN, Patel BC. Laser Fitzpatrick Skin Type Recommendations. [Updated 2022 Mar 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK557626/>