

**Tradename:** ABS Acai Sterols EFA

**Code:** 10414

**CAS #:** 68990-51-2 & 60-33-3 & 112-80-1 & 463-40-1

**Test Request Form #:** 9874

**Lot #:** 9361600

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

**Study Director:** Maureen Drumwright

**Principle Investigator:** Hannah Duckett

## **Test Performed:**

Gloss Assay

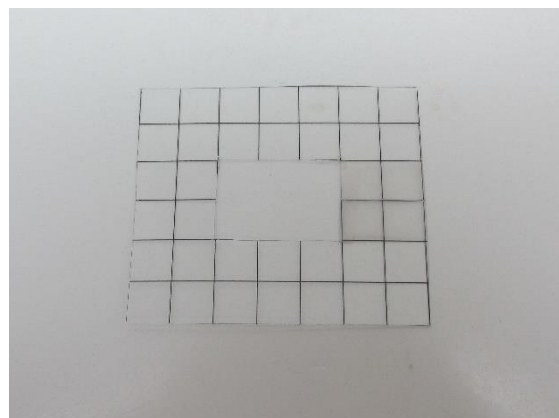
## **Introduction**

Gloss is an important attribute of most lipsticks and lip glosses. Increased gloss in lip products is desirable and can increase marketability of those type of products. Most gloss evaluations are subjective and rely heavily on sensory evaluations. The purpose of this gloss assay is to investigate multiple factors related to enhanced gloss properties of an ingredient. Analyzing reflected light via this gloss assay allows for quantifiable evaluation of gloss of an ingredient used in topical lip care applications.

A gloss assay was conducted to assess the ability of **ABS Acai Sterols EFA** to increase gloss of lip products in color cosmetics.

## **Materials**

- A. Equipment:** 3NH YG60 High Accuracy Gloss Meter, Canon Powershot SX160IS Digital camera
- B. Product:** Lip Gloss Base (Table 1)
- C. Other:** Application Template (Figure 1), Silicone Artificial Skin Sheet



**Figure 1.** Template (3x2cm) used to Create Equal Surface Area of Product on Surface

**Table 1.** Lip Gloss Base Ingredient List

INCI Name
Helianthus Annuus (Sunflower) Seed Oil
Sambucus nigra Fruit Extract
Butyrospermum Parkii (Shea Butter) & Calophyllum Tacamahaca (Tamanu) Seed Oil & Gardenia Tahitensis (Monoi) Flower Extract & Cocos Nucifera (Coconut) Oil & Orbignya Oleifera (Babassu) Seed Oil & Theobroma Grandiflorum (Cupuacu) Seed Butter & Astrocaryum Murumuru Seed Butter
Beeswax

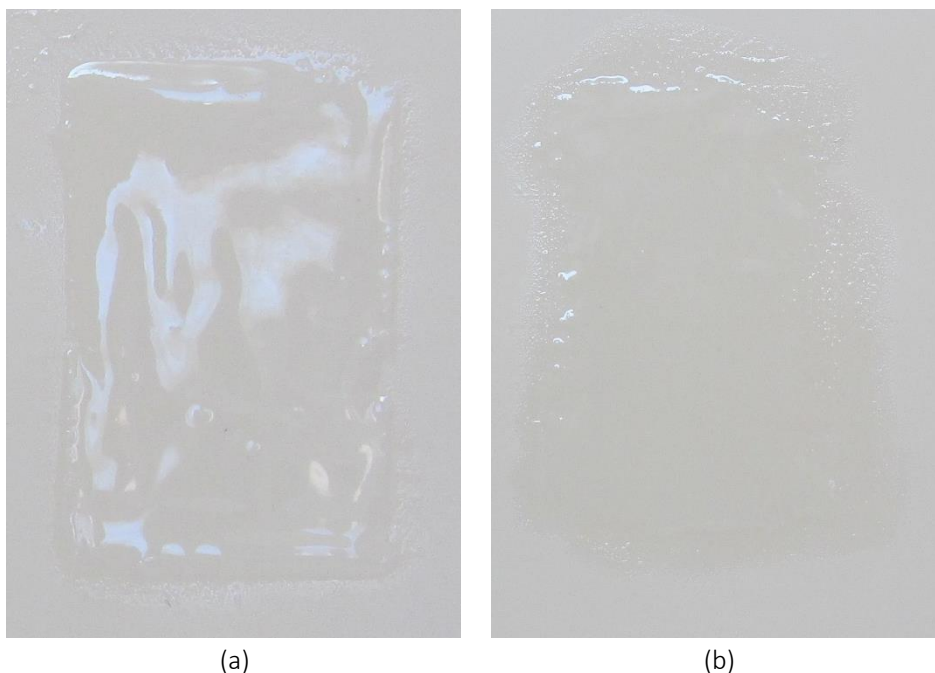
## Methods

The experimental test material, 1.0% **ABS Acai Sterols EFA** in a lip gloss base, and a control lip gloss base were applied to a silicone-based artificial skin sheet using an application template to obtain a thin uniform layer. Products were allowed to set on the skin for 15 minutes before data was collected. Digital images of each test material were taken and analyzed using imageJ software. Gloss was measured using a gloss meter and results were recorded as gloss units (GU). The gloss meter was calibrated to project light at a 60° angle to the surface of the skin and receive the reflected light at the same angle. This angle gives the best overall correlation to visual estimates of gloss and shine. Five consecutive readings were taken with the gloss meter and an average was taken, outliers greater or less than 5 GU were omitted from the reported average.

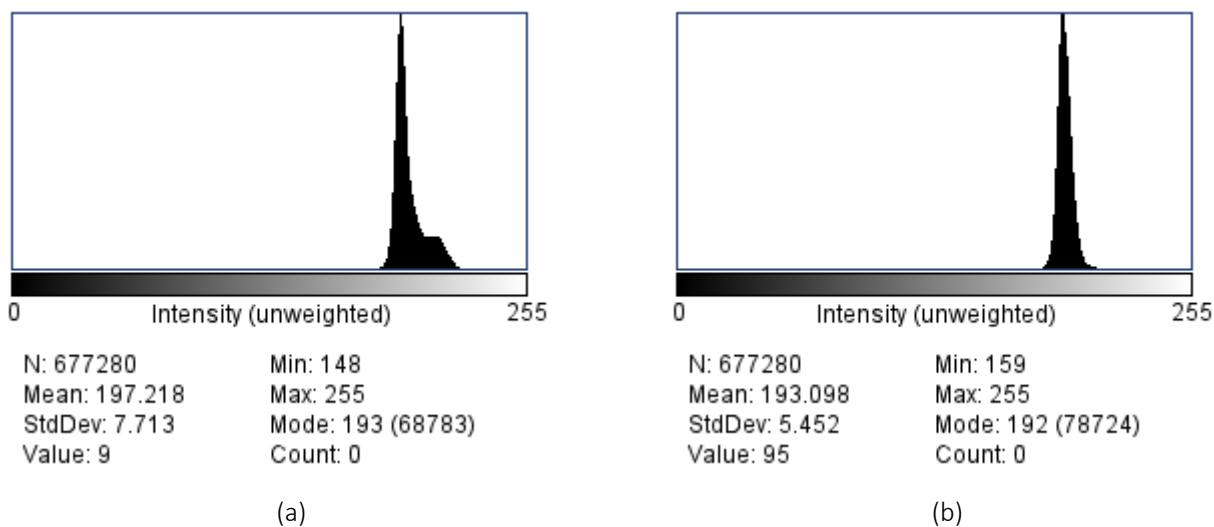
Gloss was also evaluated using a perceivable difference scale between a control lip gloss base and a lip gloss base containing the test material, 1.0% **ABS Acai Sterols EFA**. Using a variation of the triangle test method, three 2 mg samples were applied to a silicone skin sheet. The test samples consisted of two lip gloss base controls and one experimental lip gloss base containing **ABS Acai Sterols EFA**. Participants were asked to identify the site containing the experimental sample with **ABS Acai Sterols EFA** based upon visual differences between the gloss produced by each test sample.

## Results

ABS Acai Sterols EFA demonstrated an increase in gloss at a concentration of 1.0%.



**Figure 2.** Images of Each Test Site on the Silicone Skin Sheet (a) **ABS Acai Sterols EFA** in Lip Gloss Base and (b) Lip Gloss Base



**Figure 3.** Histogram Images of Each Test Site (a) **ABS Acai Sterols EFA** in Lip Gloss Base and (b) Lip Gloss Base

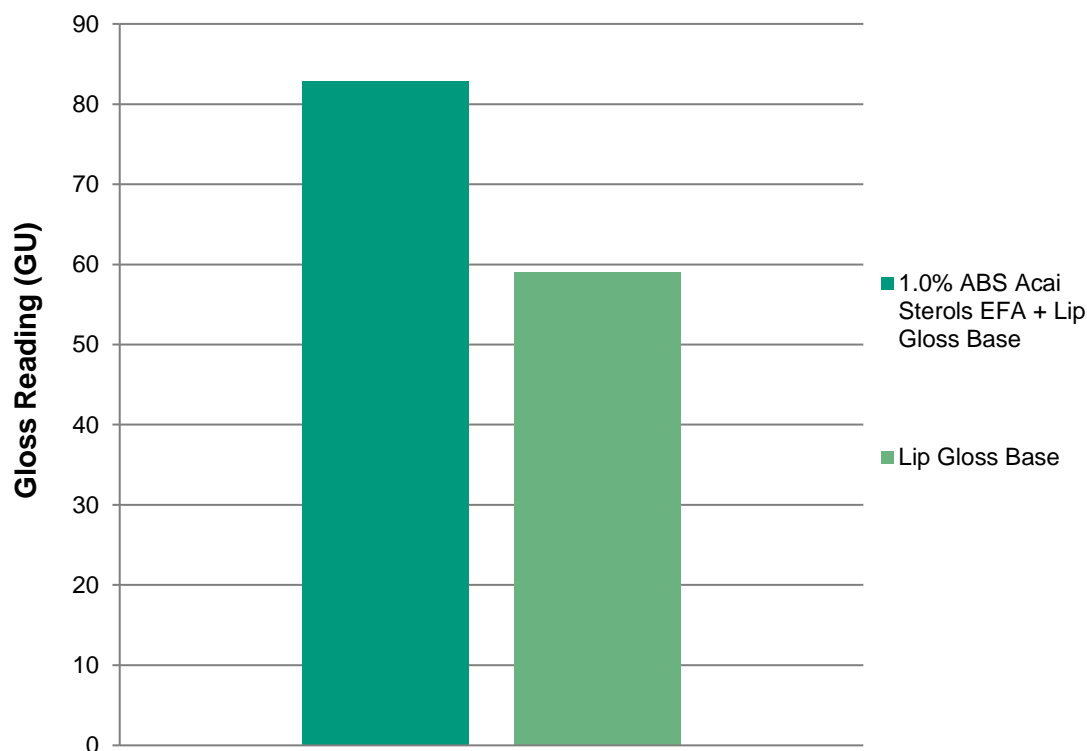
**Table 2.** Gloss Averages of Each Test Site (GU) (n=5)

Test Site	Gloss Average
1.0% ABS Acai Sterols EFA + Lip Gloss Base	82.82
Lip Gloss Base	59.06

**Table 3.** Comparative Gloss Readings between Test Materials

Percent Difference (%)	
1.0% ABS Acai Sterols EFA + Lip Gloss Base vs Lip Gloss Base	33.49

## Average Gloss



**Figure 4.** Gloss Averages of Each Test Site (GU) (n=5)

**Table 4.** T-test Analysis of the Gloss Percent Difference (%) Between **ABS Acai Sterols EFA** and Base Gloss (n=5,  $\alpha=0.05$ , df=5)

	ABS Acai Sterols EFA	Lip Gloss Base
Mean	82.82	59.06
Variance	5.137	69.508
t Stat	6.14937641	
P(T<=t) two-tail	0.00165329	
t Critical two-tail	2.57058184	

## Discussion

With this multi-parameter assay, we were able to both quantitatively and qualitatively assess the gloss produced by shine enhancing products and can conclude that **ABS Acai Sterols EFA (10414)** was able to increase the appearance of gloss. Gloss meter values indicate that **ABS Acai Sterols EFA** provided a significantly higher level of gloss than the base alone by 33.49% ( $p=0.0017$ ). Figure 3 further indicates that the product containing **ABS Acai Sterols EFA** provided a higher gloss intensity than that of the base gloss alone.

Visually, the lip gloss base containing **ABS Acai Sterols EFA** appeared glossier than the base alone. Of the 10 participants, 8 were able to correctly identify the product containing **ABS Acai Sterols EFA** based off perceived glossiness. In addition to subjective sensory analysis, we were able to quantify gloss produced using a gloss meter and imageJ software. These data indicate that at normal use concentrations **ABS Acai Sterols EFA** can effectively increase gloss in topical cosmetic applications.