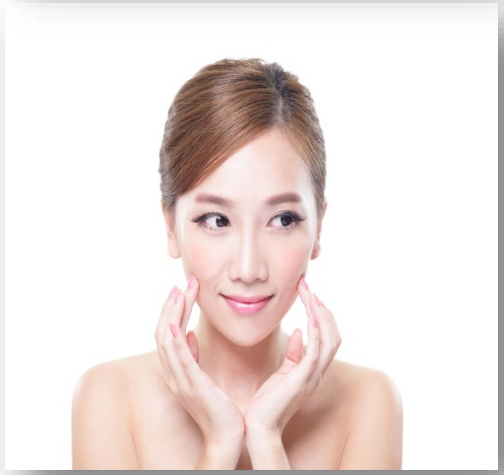
AC Biopolymer Soy PF

Sebum Control + Problem Skin + Film-Former



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AC Biopolymer Soy PF

Technical Information:

Product Code: 21002PF

INCI Name: Sodium C8-16 Isoalkylsuccinyl Soy Sulfonate

INCI Status: Conforms

Suggested Use Levels: 0.5 - 5.0%

Suggested Applications: Sebum Control, Problem Skin, Film-Former

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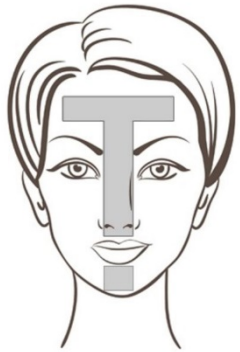
Background

- Sebaceous glands in the skin secrete an oily, waxy substance called sebum
- Sebum lubricates and waterproofs both skin and hair
- An excessive production of sebum has been known to clog pores, produce an oily aesthetic, and cause build up
- The T-zone has the most sebaceous glands anywhere on the body
- Sebum can cause a unwanted color shift in colored cosmetics



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Background

- Three common ways to address sebum
  - Strip the skin with alcohol, resulting in a rebound effect that causes the skin to go into sebum producing overdrive
  - Powder absorption, resulting in a less oily aesthetic, but clumped make up and clogged pores, yuck!
  - Biochemically blocking the formation of sebum on the skin, leaving the skin dried and unattractive
- Best way to combat sebum
  - Control the production

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Science

- **AC Biopolymer Soy PF** introduces a fresh new take on controlling sebum
- **AC Biopolymer Soy PF** is a modified protein with a lipid moiety that disrupts the surface tension of sebum on the skin by naturally binding to excess sebum
- Contains a water soluble backbone that acts as a film former which causes the polymer to plate out on the skin

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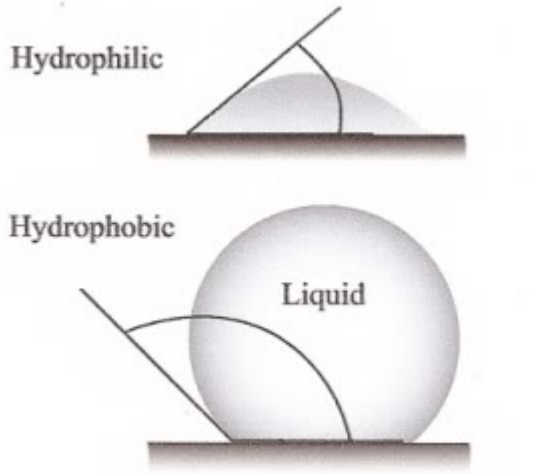
Science

- The alkyl sulfonate moieties change the contact angle of the sebum that is present on the skin
  - This change forces the sebum to exist as distinct droplets instead of as a film
  - The inclusion of soy provides conditioning and moisture retention benefits to keep the skin from becoming overly dry



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Benefits

- Capitalizes on health benefits of soy protein while a sebum controlling agent changes the contact angle of the sebum on the skin
- Disrupts the surface tension of sebum on the skin by naturally binding to excess sebum
- Can be used in various cosmetic and personal care products for sebum control and enhancing brand differentiation

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Sebum Reduction Assay

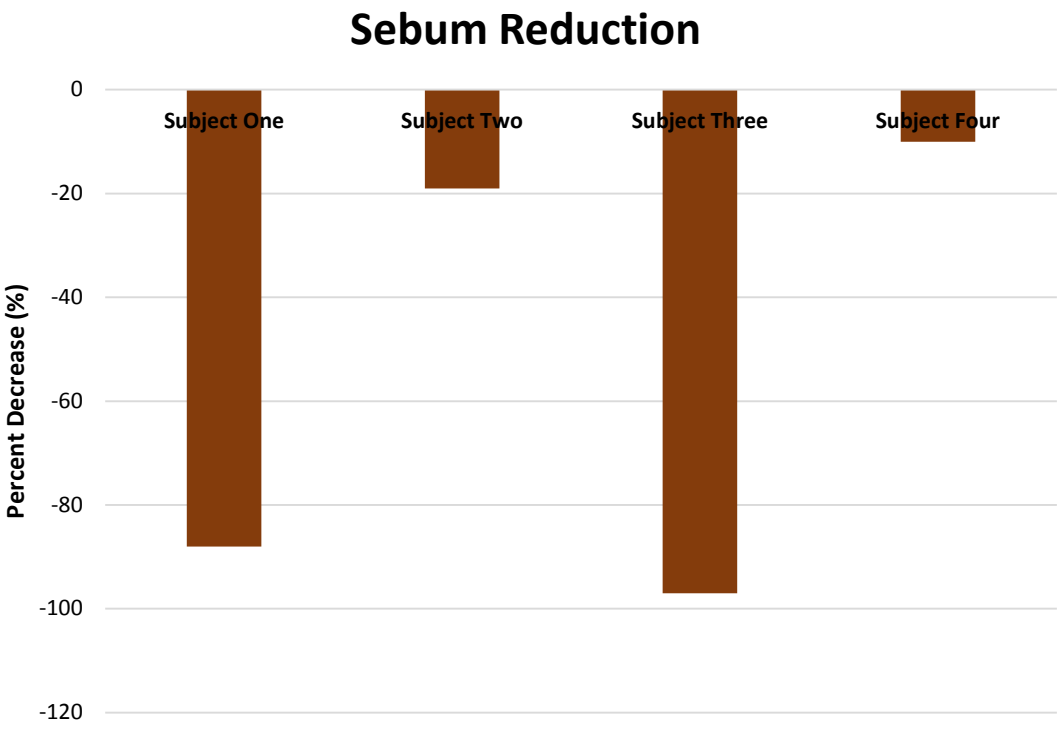

Figure 1. Average sebum readings over a 8 hour time

Protocol

- 2.0% **AC Biopolymer Soy PF** + Liquid Foundation applied to half the subjects face, only liquid foundation was applied to the control side
- DermaLab Skin Combo & Sebum Collection Strips analyzed participants sebum every 3 hrs, in an 8 hr wear test
- Sebum reduction was calculated from the control sebum reading at 8 hours vs. experimental sebum reading at 8 hours
- **AC Biopolymer Soy PF** was effective at reducing sebum relative to the subjects base reading

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Color Shift Study

Protocol

- Color shift is a common issue which occurs when foundation oxidizes on the skin and alters the color of the foundation throughout the day
- In-vivo study with four female subjects between the ages of 23-35 participated in the study
- A mass market foundation for normal/combination skin was placed on the control side of the face, the experimental side was treated with the same foundation + 2.0% **AC Biopolymer Soy PF**
- DermaLab Skin Combo was used to photograph the cheek and forehead at three hour intervals for one, eight hour day
- Photos were then quantified via histogram to illicit the color shift or color loss from the control and experimental foundation
- Results indicate that **AC Biopolymer Soy PF** is capable of significantly decreasing foundation color shift, a common problem, over time.

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Color Shift Study

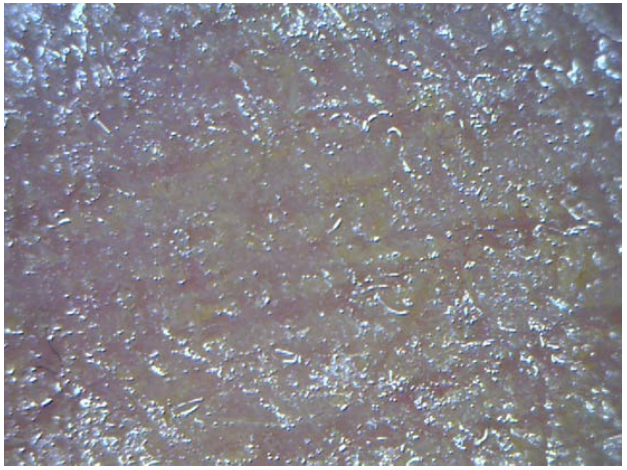

Figure 2. Control forehead at 8hr (Subject 2)

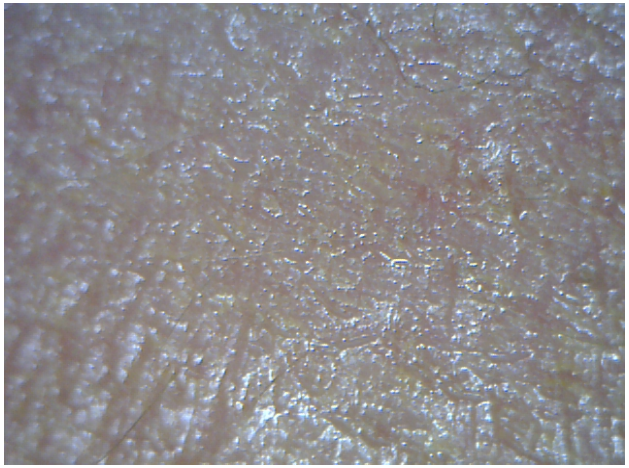

Figure 3. Experimental forehead at 8hr (Subject 2)

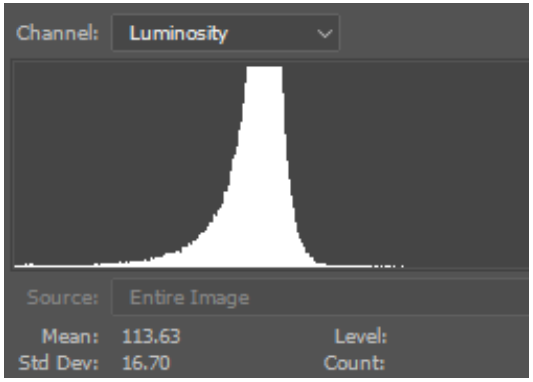

Figure 4. Quantified control forehead at 8hr (Subject 2)

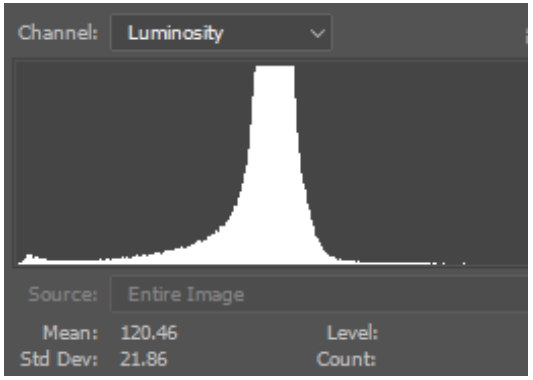

Figure 5. Quantified experimental forehead at 8hr (Subject 2)

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ORAC Assay

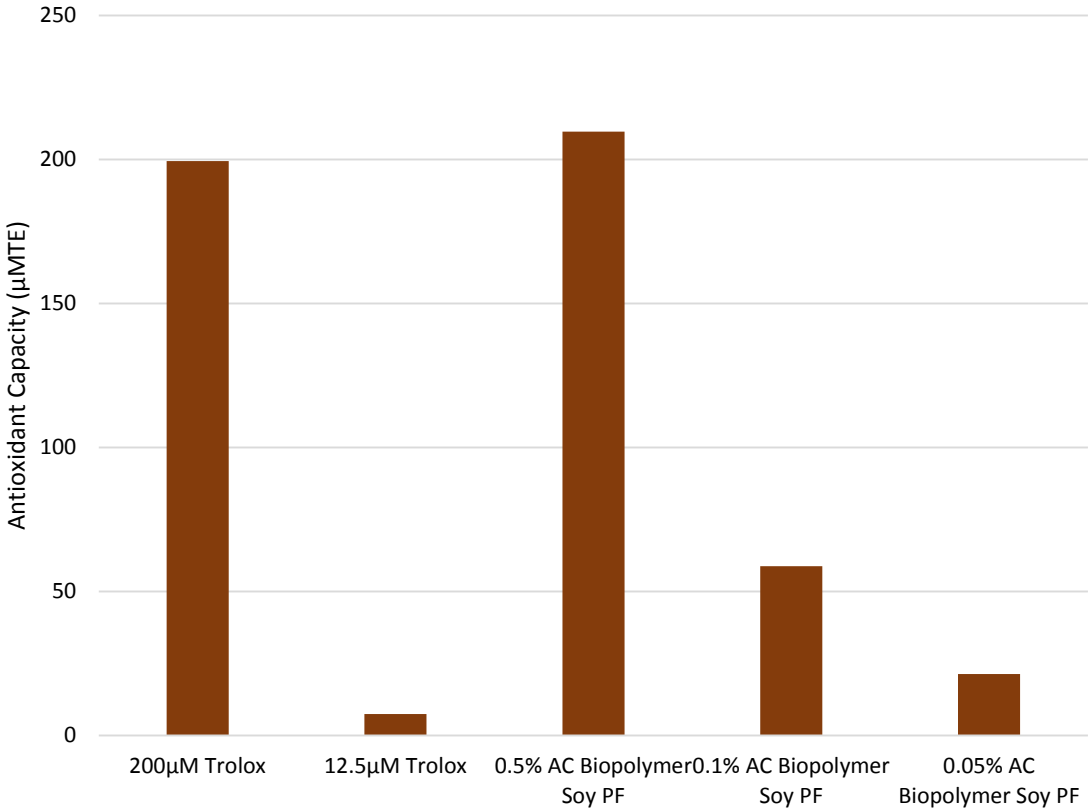

Figure 5. Antioxidant Activity

Protocol

- Solutions of **AC Biopolymer Soy PF** and Trolox® (positive control) were prepared in 75mM potassium phosphate buffer
- Concentrations: 0.05%, 0.1%, 0.5%
- 25µL of test material & Trolox® were combined with 150µL of fluorescein in 75mM potassium phosphate buffer & incubated in the Synergy HT Microplate reader at 37˚C for 30 minutes
- **AC Biopolymer Soy PF** began exhibiting antioxidant activity at a 0.05% concentration

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Cellular Viability Assay

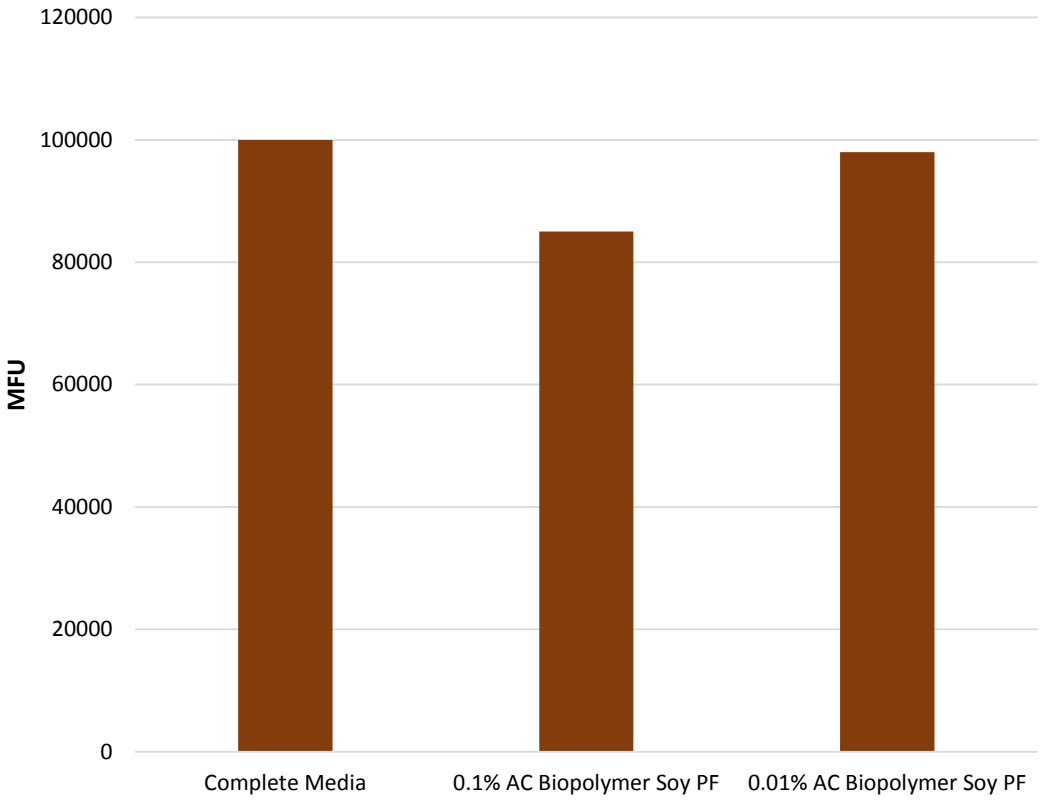

Figure 6. Cellular Metabolism of **AC Biopolymer Soy PF**-treated fibroblasts

Protocol

- Human dermal fibroblasts were seeded into 96-well tissue culture plates and allowed to grow to confluency in complete DMEM
- **Concentrations:** 0.10%, 0.01%
- Ten microliters of viability reagent was added to 90µL of cell culture media in culture wells
- **AC Biopolymer Soy PF** exhibited positive results by increasing cell metabolism

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