Active Concepts

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Anti-Pollution Assay Analysis

Tradename: AcquaSeal® Coconut

Code: 20742

CAS #: 8001-31-8

Test Request Form #: 2166

Lot #: 45804P

Sponsor: *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*
Study Director: *Maureen Danaher*
Principle Investigator: *Jennifer Goodman*

Test Performed:
Pollution Protection Assay

Introduction

The role of pollution in the appearance of the premature wrinkles and age spots has become a new frontier in antiaging active ingredients. While we have known about the harmful effects of pollution on our health for years, new research indicates air pollution plays a detrimental role in extrinsic aging. Carbon and metal micro particles found in polluted air embed in the dermis causing oxidative stress, initiating the inflammatory cascade leading to the breakdown on the collagen, elastin, and other structural components in the skin. Additionally, polyaromatic hydrocarbons overstimulate the aryl hydrocarbon receptors on keratinocytes and melanocytes resulting in the hyperpigmentation and the appearance of age spots. Providing a physical barrier will prevent embedment of carbon particles, thus reducing the signs extrinsic aging.

Our pollution protection assay was conducted to assess the ability of **AcquaSeal® Coconut** to provide immediate protection from carbon air pollution.

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Materials

A. Equipment:	Dissecting microscope; Digital camera; Pipettes
B. Reagents:	Micronized activated charcoal; Cetaphil Moisturizing for All Skin Types
C. Other:	Disposable pipette tips; wash bottles

Methods

Volunteers, male and female, between the ages of 23 and 45 and who were known to be free of any skin pathologies participated in this study. All subjects were asked to apply 2 mg of each test material, experimental, control, and untreated on their volar forearms. Lotions were allowed to dry completely before the addition of 5 mg of micronized charcoal. The micronized charcoal used has a particle size of 2.5 microns (PM 2.5) or less that mimics the small particulates found in polluted air. Each treatment area was washed five times using deionized water. Images were taken pre- and post-wash using a dissecting microscope.

The test material consisted of 2% **AcquaSeal® Coconut** in a Cetaphil Moisturizing for All Skin Types. For added perspective, images of an untreated test site and a site treated with Cetaphil Moisturizing for All Skin Types were recorded.

Color analysis was conducted on the images and results depicted in optical density values and pigmentation histograms. Images were inverted and standard coloration values recorded and assigned absorbance units. The lower the mean optical density value the better protection against carbon particle embedment or PM 2.5 inhibition.

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Results

The data obtained from this study met criteria for a valid assay and the controls performed as anticipated.

AcquaSeal® Coconut at a concentration of 2% was able to provide protection from carbon pollution.

Figure 1: AcquaSeal® Coconut Histogram Images - Inhibition on PM 2.5

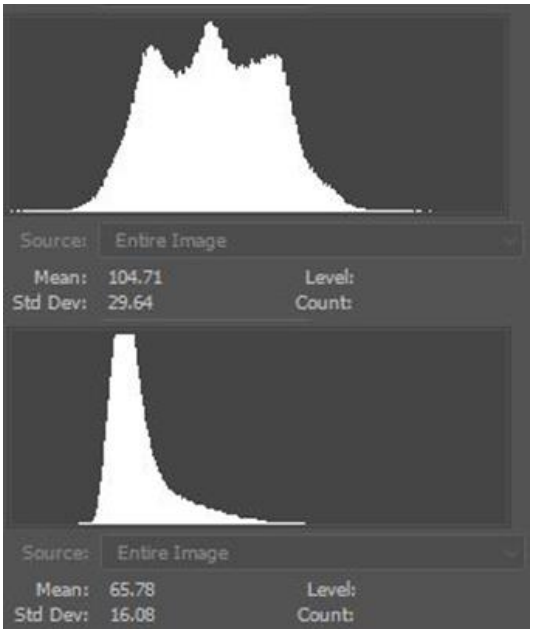

Figure 2: **AcquaSeal® Coconut** Images

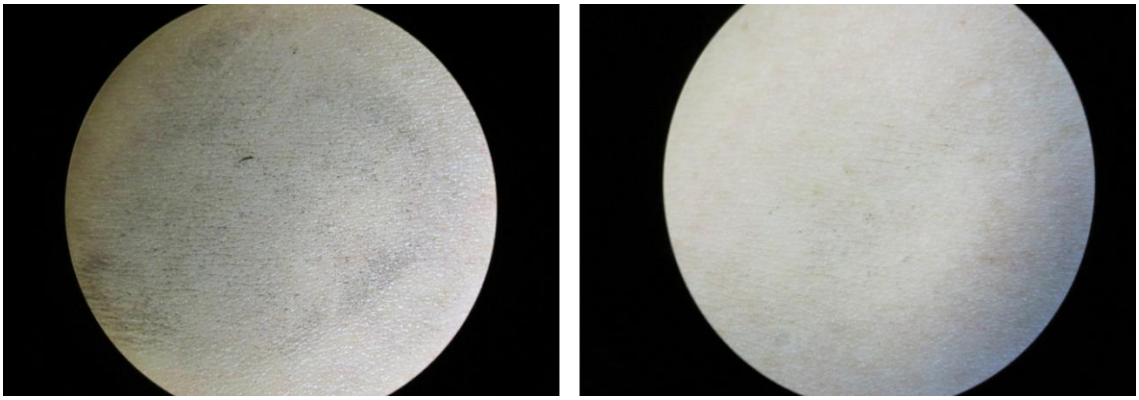

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Figure 3: Untreated Histogram Images - Inhibition on PM 2.5

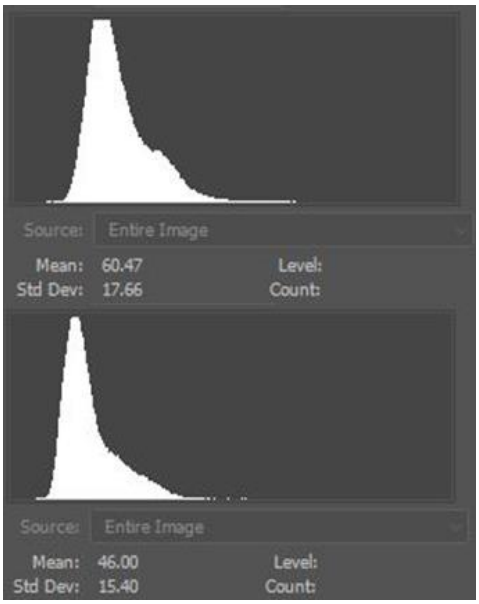

Figure 4: Untreated Images

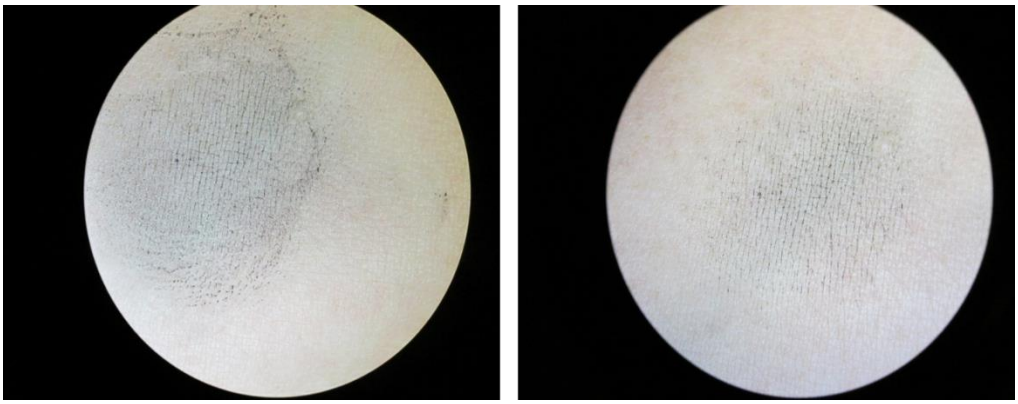

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Figure 5: Control (Cetaphil) Histogram Images - Inhibition on PM 2.5

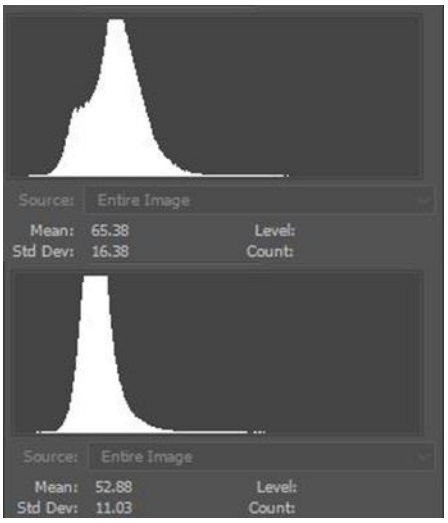
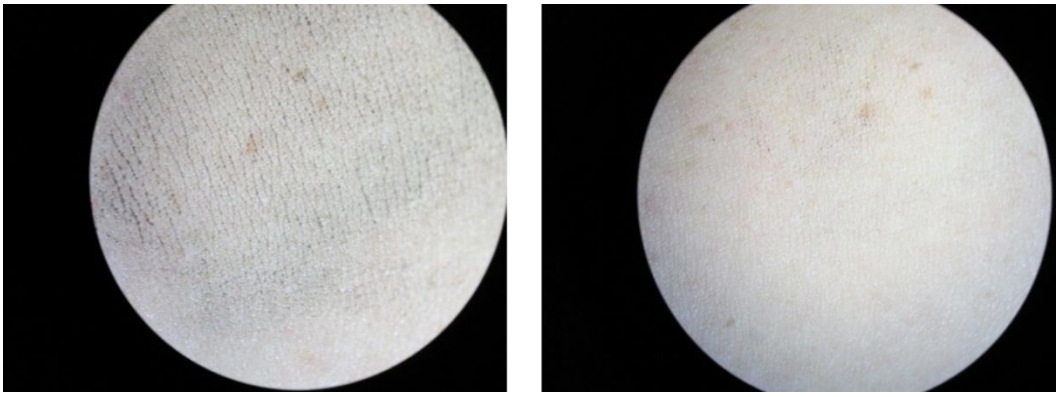


Figure 6: Control (Cetaphil) Images



Discussion

As shown in Figure 1, **AcquaSeal® Coconut (code 20742)** was able to provide pollution protection as specified by micronized carbon residue. The small amount of carbon that remains compared to the untreated control indicates the ability of **AcquaSeal® Coconut** to provide barrier protection against everyday air pollution and slow the extrinsic aging process. It can therefore be concluded that at normal use concentrations **AcquaSeal® Coconut** can be used as a skin pollution protection active ingredient.