INCI : Water & Ananas Sativus (Pineapple) Fiber Crosspolymer & Lactobacillus Ferment

Active Concepts

Available Efficacy Studies

In Vitro .

- Total Cellular Protein in Response to UV-B Irradiation Assay
- Color Pigment Dispersion Assay
- SPF Pigment Dispersion Assay
- Sunscreen Sensory Analysis /Triangle Test

In Vivo .

- Carbon Pollution Protection Study
- TEWL 24 Hour Assay
- 24 Hour Moisturization Assay
- UV Hair Protection Assay-Report

Pending

- Salon Half Head Study - 2%

Tox & Safety

- AMES
- Cellular Viability
- Dermal & Ocular Irritation
- Phototoxicity Assay
- OECD 201 Fresh Water Algae Growth Inhibition
- OECD 301B Ready Biodegradability Assay
- OECD TG 442C – Direct Peptide Reactivity Assay
- OECD TG 442D – In Vitro Skin Sensitization Report

24-Hour Moisturization Assay

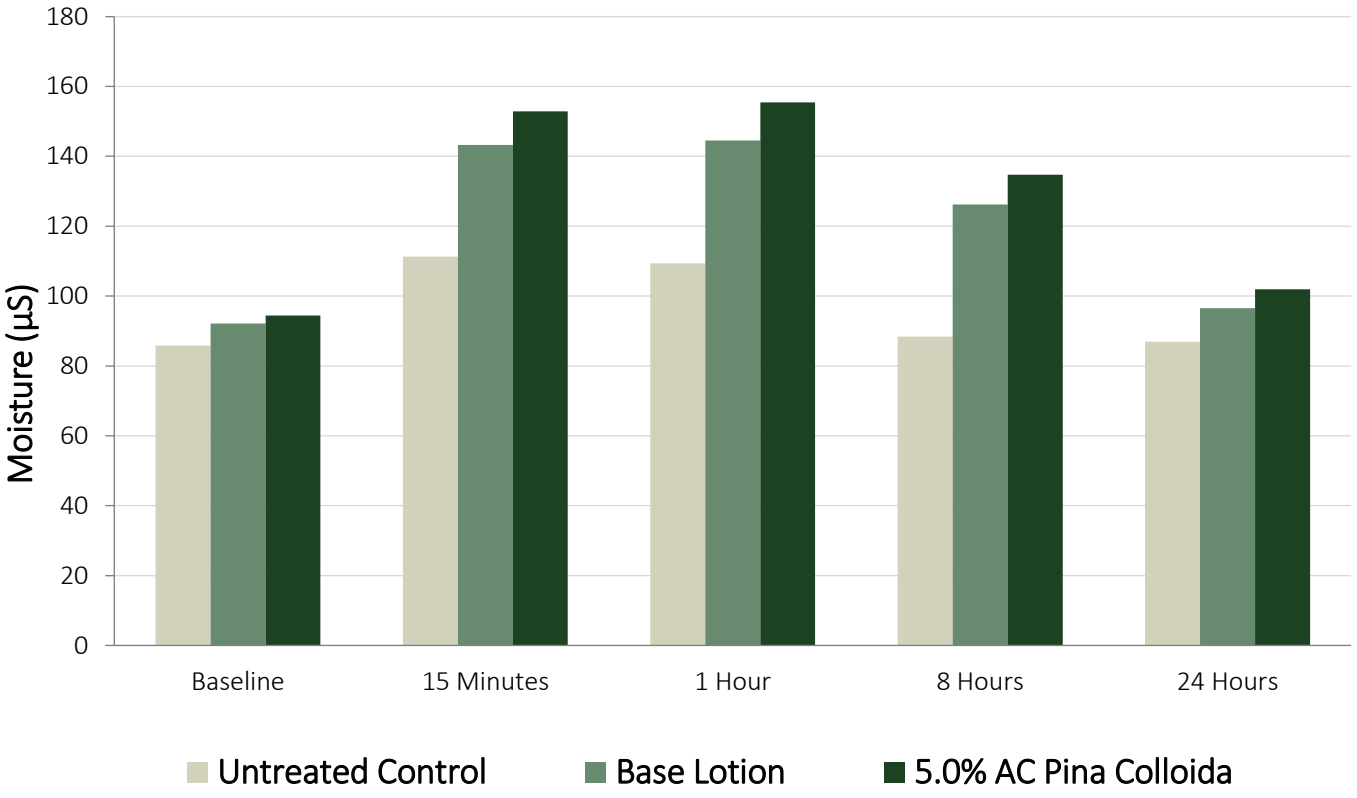


Figure 1. Skin Hydration Overtime

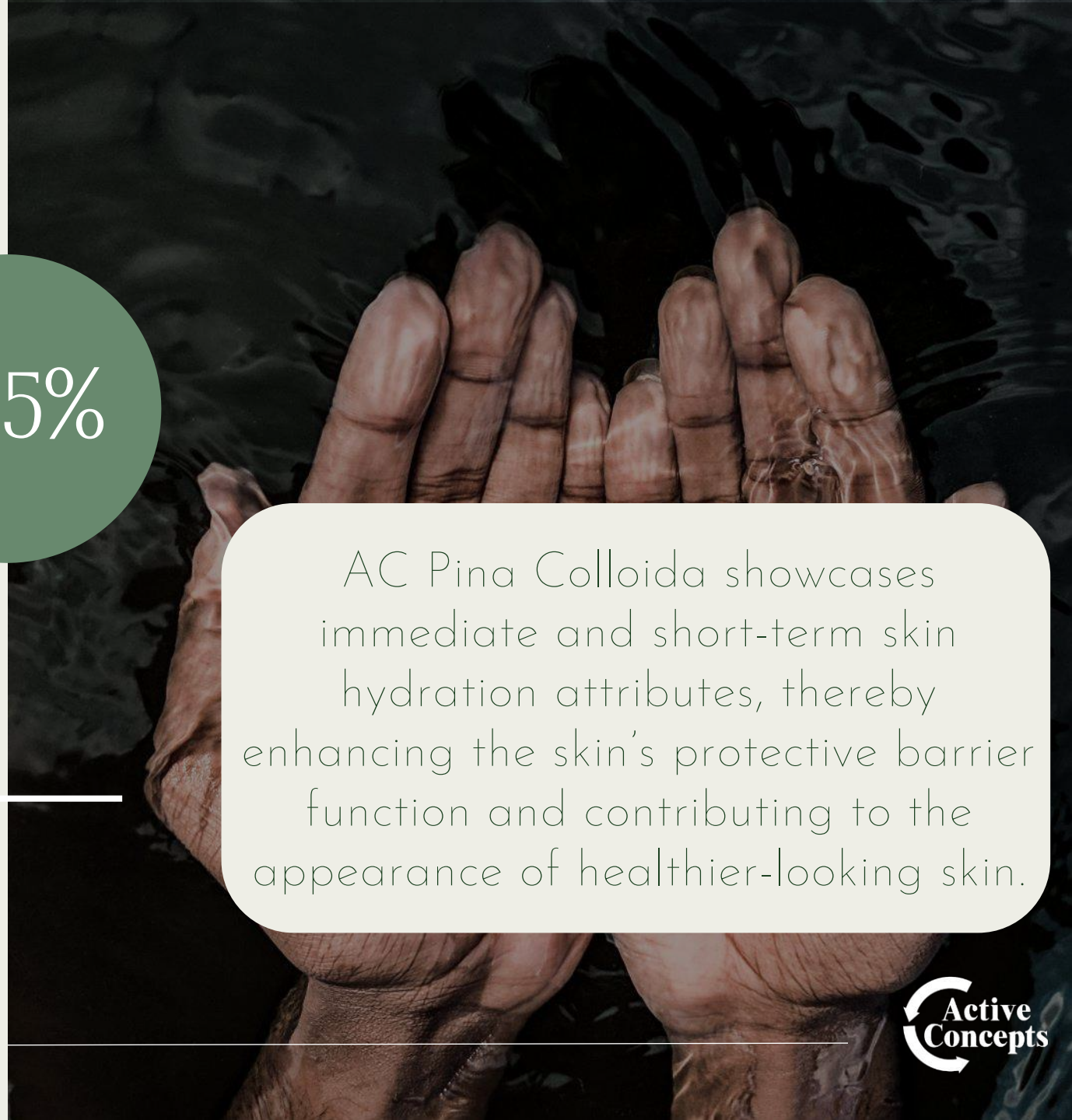
Proper hydration maintains the skin's structural and functional integrity and contributes to the appearance of healthier-looking skin.

Accordingly, a moisturization study was conducted to evaluate the immediate and short-term skin hydrating properties of AC Pina Colloida.

Applying 5.0% AC Pina Colloida significantly augmented skin moisturization one hour after application by

+65%

Benefits



AC Pina Colloida showcases immediate and short-term skin hydration attributes, thereby enhancing the skin's protective barrier function and contributing to the appearance of healthier-looking skin.

Active Concepts

24-Hour Transepidermal Water Loss Study

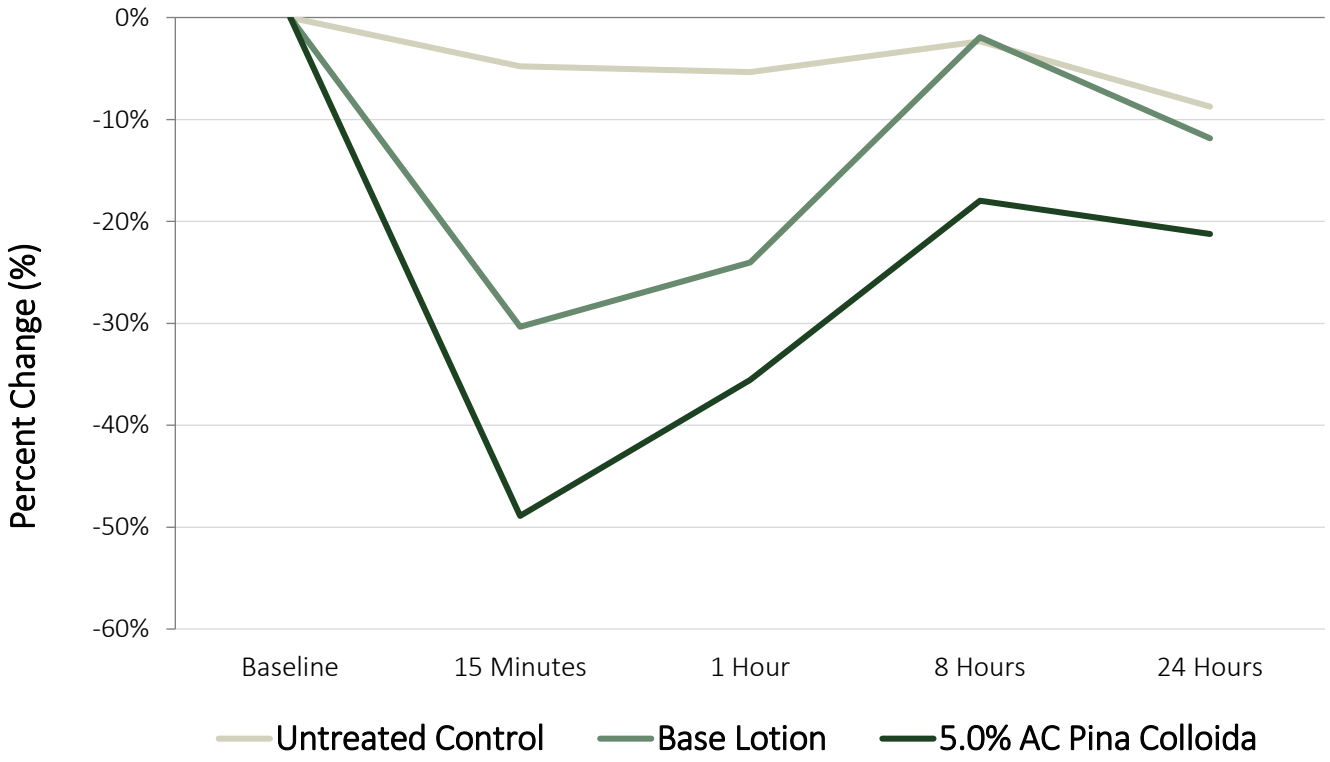
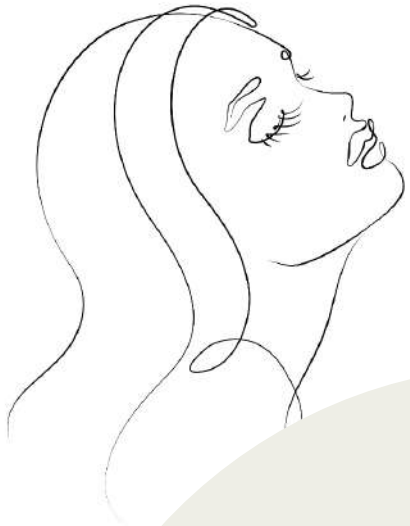


Figure 2. Percent Change in Transepidermal Water Loss Relative to Baseline Values.



Moderating excessive TEWL improves the skin's protective barrier function and contributes to the appearance of healthier-looking skin.

Accordingly, a transepidermal water loss study was conducted to evaluate the immediate and short-term moisture retention properties of AC Pina Colloida.

Applying 5.0% AC Pina Colloida significantly reduced TEWL one hour after application by

-36%

Benefits

AC Pina Colloida exhibits immediate and short-term moisture retention capabilities, enhancing the skin's protective barrier function and promoting a visibly healthier complexion.

Active Concepts

Carbon Pollution Protection Study

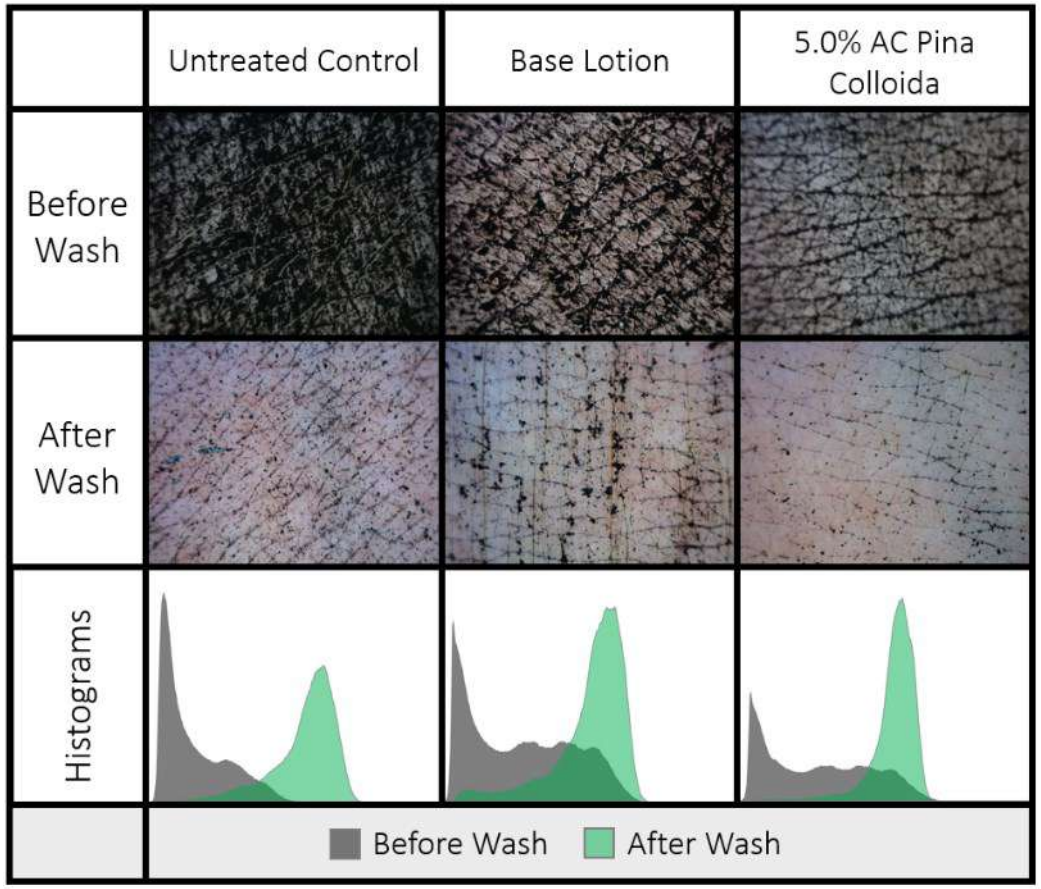
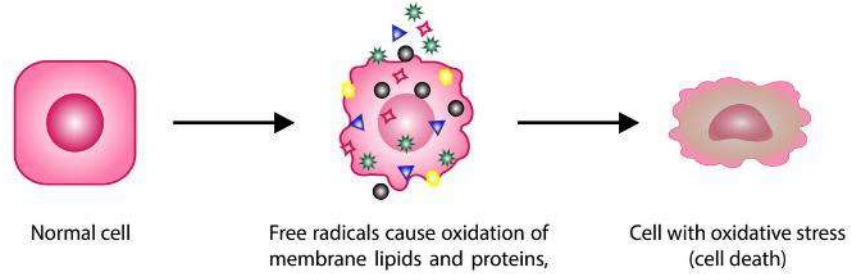


Figure 3. Images of each treatment site before and after washing with light intensity histograms of each site before and after washing



Oxidative Stress

New research indicates air pollution plays a detrimental role in extrinsic aging. Carbon and metal micro-particles found in polluted air embedded in the dermis cause oxidative stress, initiating inflammatory cascade leading to the breakdown of collagen, elastin, and other structural components in the skin. Providing a physical barrier will prevent embedment of carbon particles, thus reducing the signs of extrinsic aging.

Applying 5.0% AC Pina Colloida reduced carbon on the skin after wash by

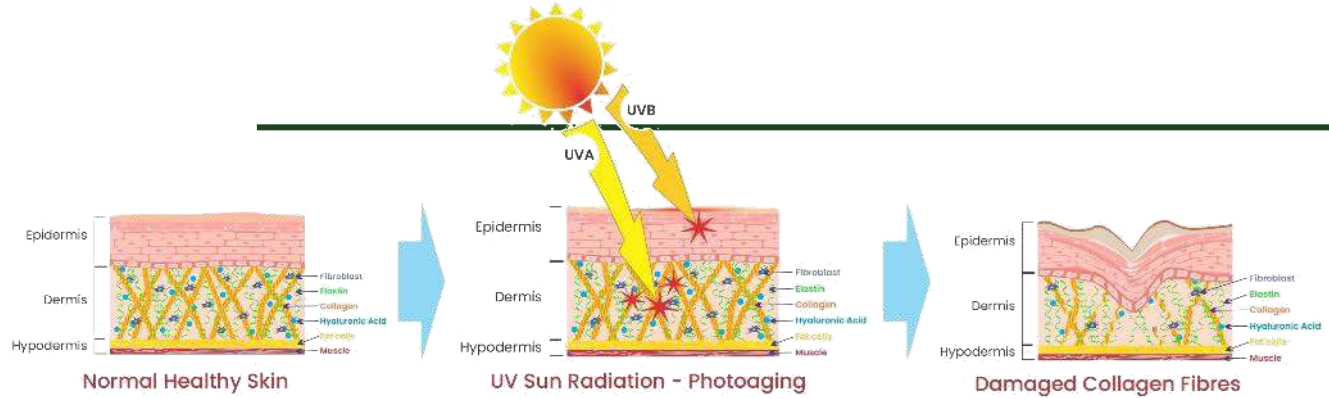
-64%

Benefits

AC Pina Colloida diminishes carbon buildup on the skin while aiding in its removal, thereby enhancing the skin's protective barrier function and promoting a healthier, more radiant complexion.

Active Concepts

Total Cellular Protein in Response to UV



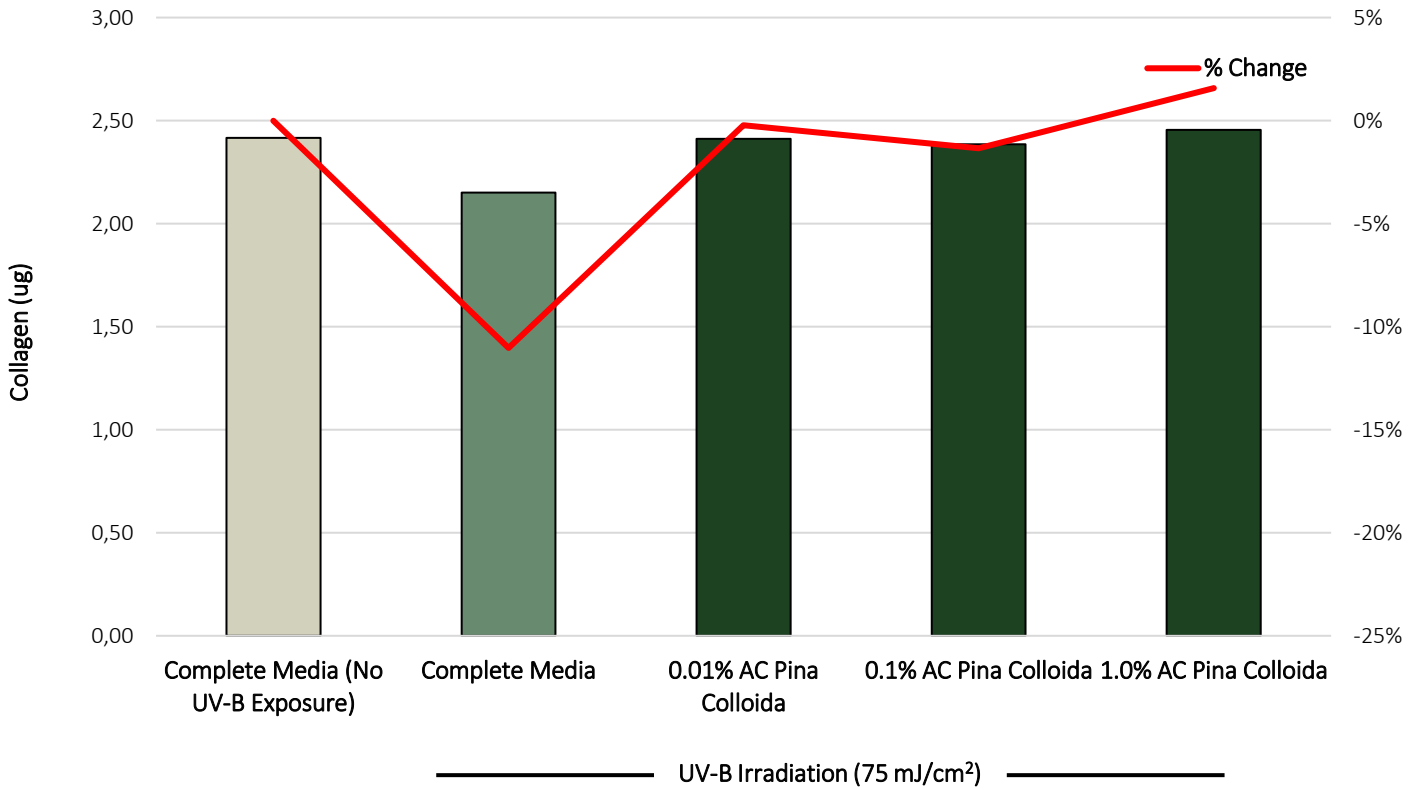


Figure 4. The effect of UV-B irradiation on collagen.

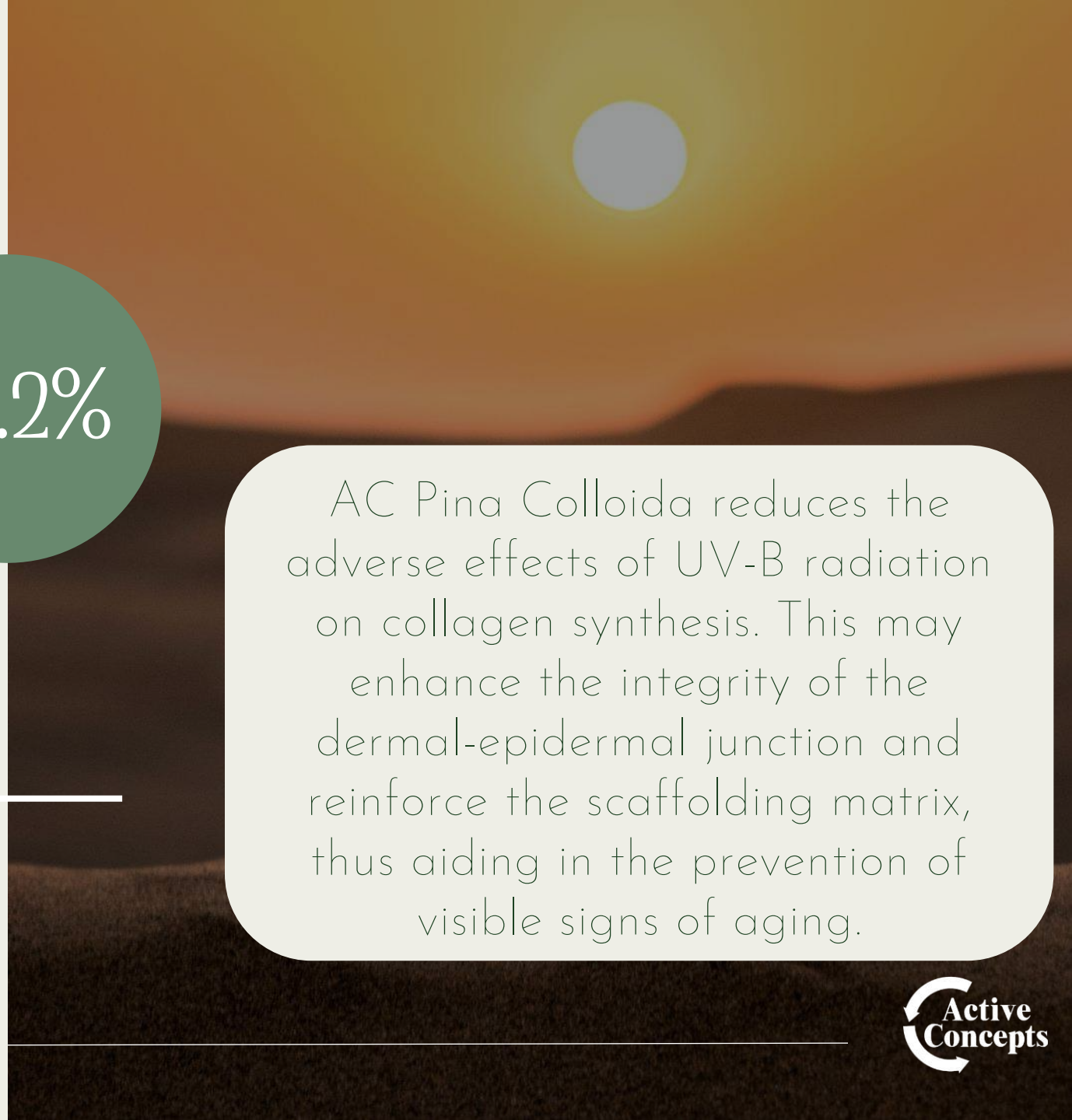
A Sirius Red/Fast Green Collagen Assay was conducted to assess the *in vitro* protective effect of AC Pina Colloida against reductions in collagen synthesis and non-collagenous protein levels caused by UVB irradiation. Excessive exposure to UVB light stimulates inflammation, reactive oxygen species, DNA mutations, and disruptions in dermal-epidermal junction integrity, which can exacerbate skin wrinkling and aging.

0.01% of AC Pina Colloida blunted the negative effects of UVB irradiation compared to untreated fibroblasts by

-0.2%

Benefits

AC Pina Colloida reduces the adverse effects of UV-B radiation on collagen synthesis. This may enhance the integrity of the dermal-epidermal junction and reinforce the scaffolding matrix, thus aiding in the prevention of visible signs of aging.



Active Concepts

UV Hair Protection Assay

Tryptophan Degredation After 48 Hours of UV Exposure

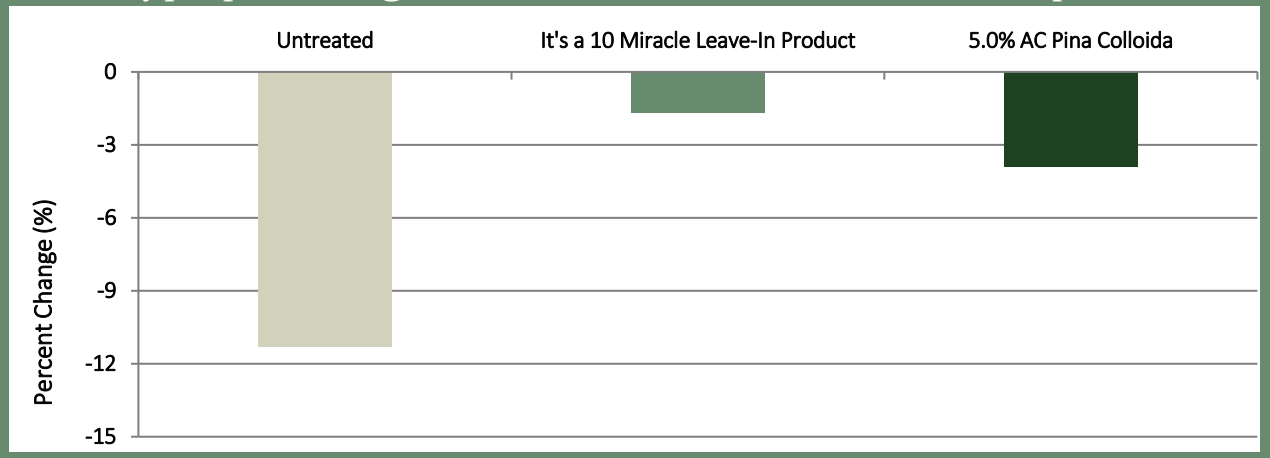
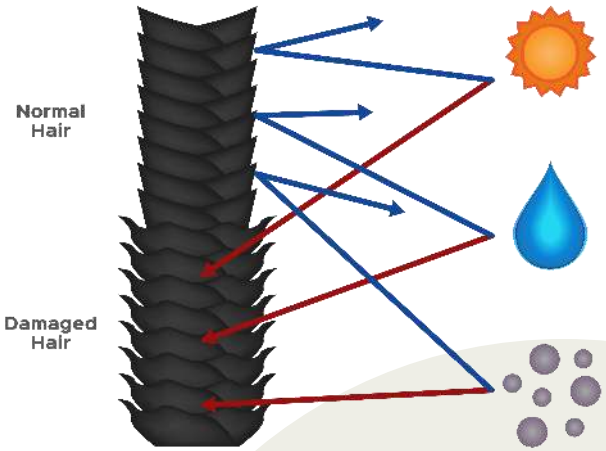


Figure 5. Percent Change in Tryptophan after 48 Hours of UV Exposure Compared to Hair without UV Exposure. Positive Control: it's a 10 Miracle Leave-In Product.



Lipid Peroxidation After 48 Hours of UV Exposure

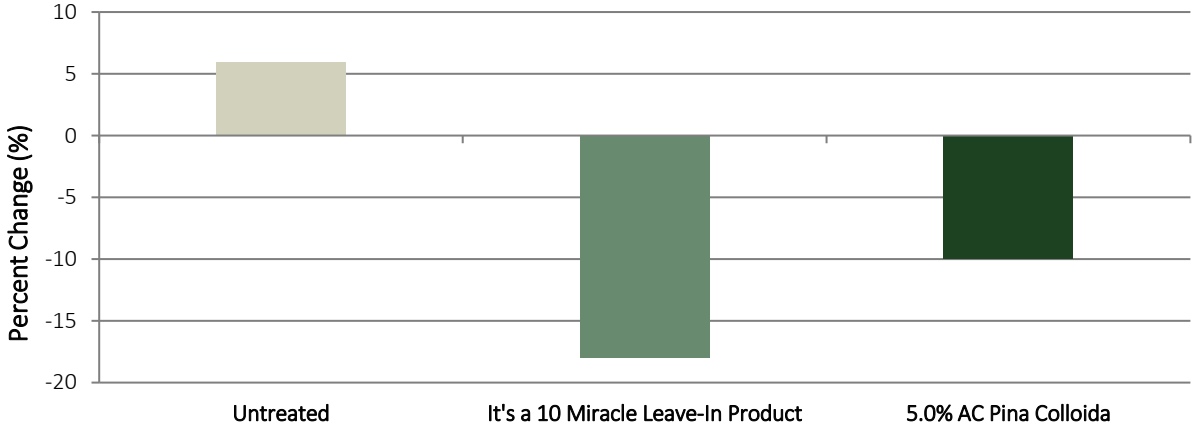


Figure 6. Percent Change in MDA Concentration after 48 Hours of UV Exposure Compared to Hair without UV Exposure. Positive Control: it's a 10 Miracle Leave-In Product.

The deleterious effects of UV exposure in hair care are a new frontier for active ingredients given the vulnerability of hair and lack of protective mechanisms against the sun. A multiparameter approach was used to determine the UV protection capabilities of cosmetic hair applications. The ability of AC Pina Colloida to protect hair from UV irradiation was assessed via determination of amino acid and lipid degradation.

5% of AC Pina Colloida helped maintain hair shaft structural integrity by protecting amino acids and reducing lipid peroxidation in hair compared to control by

-10%

Benefits

AC Pina Colloida enhances the structural integrity of hair by preventing the harmful effects of UV irradiation, resulting in healthier hair.

Active Concepts

Color Pigment Dispersion Assay

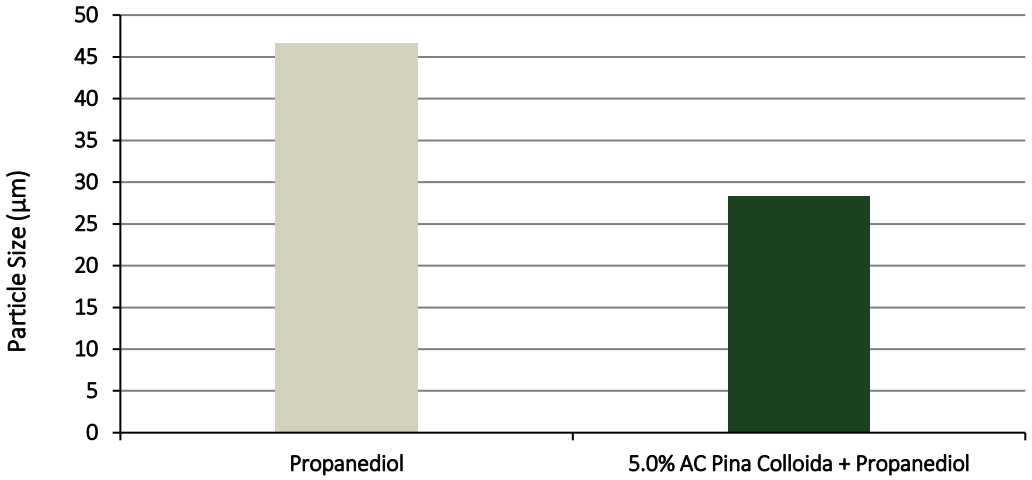
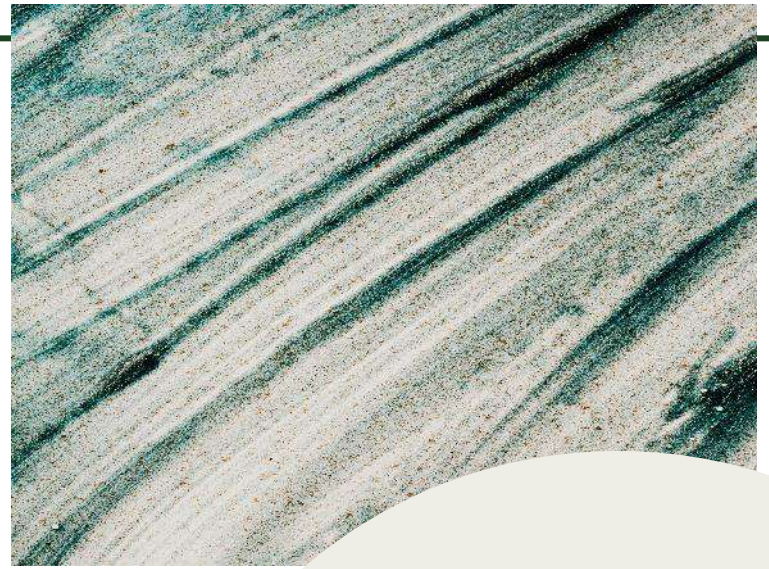


Figure 7. Grind Guage Particle Size (µm) of a Four-Pigment Blend in Propanediol and 5.0% AC Pina Colloida Immediately After Homogenization.



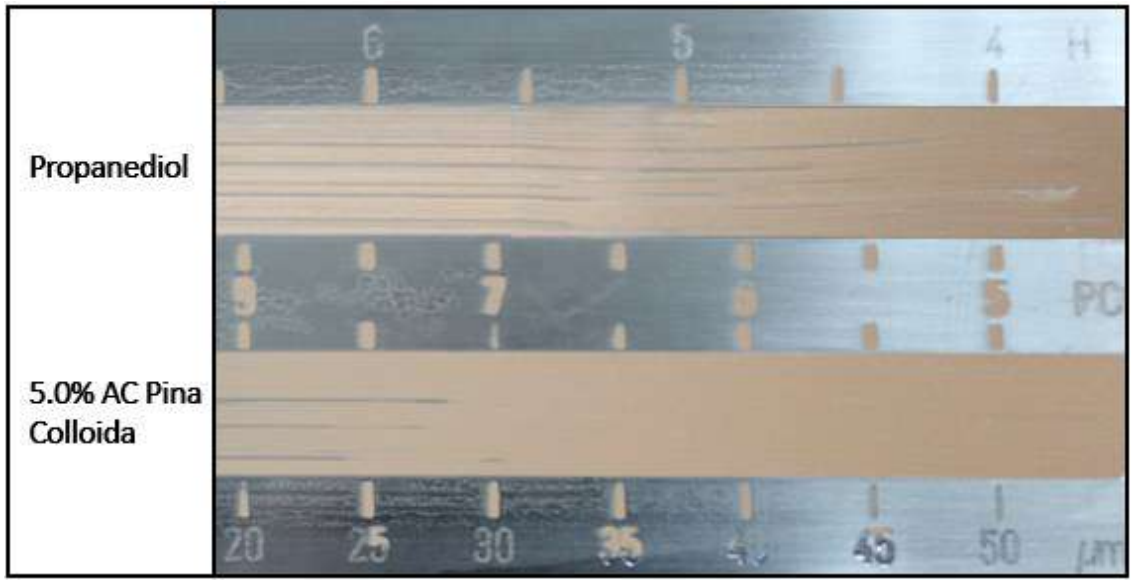


Figure 8. Grind Gauge Image of Each Pigment Dispersion

A product that disperses pigments evenly will provide better overall coverage and can improve the product's appearance on the skin. A well-dispersed product will consist of small pigment particles that are not agglomerated together and will stay dispersed over time. Improving pigment dispersion can also positively impact color intensity of a product as well, such as in foundations, blushes, or eyeshadows.

Color Pigment Dispersion Assay

AC Pina Colloida augments the color intensity of pigment dispersions in color cosmetics.

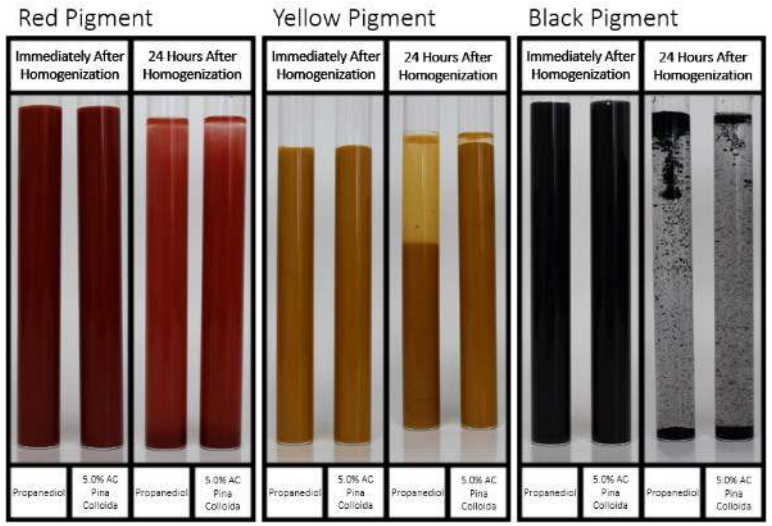


Figure 9. Pigment Sedimentation in Propanediol and 5.0% AC Pina Colloida Immediately and 24 hours After Homogenization

AC Pina Colloida reduced sedimentation and improved stability with red, yellow, and black pigment dispersions 24 hours after homogenization: maintains a uniform pigment dispersion with little to no precipitation or color change following homogenization.

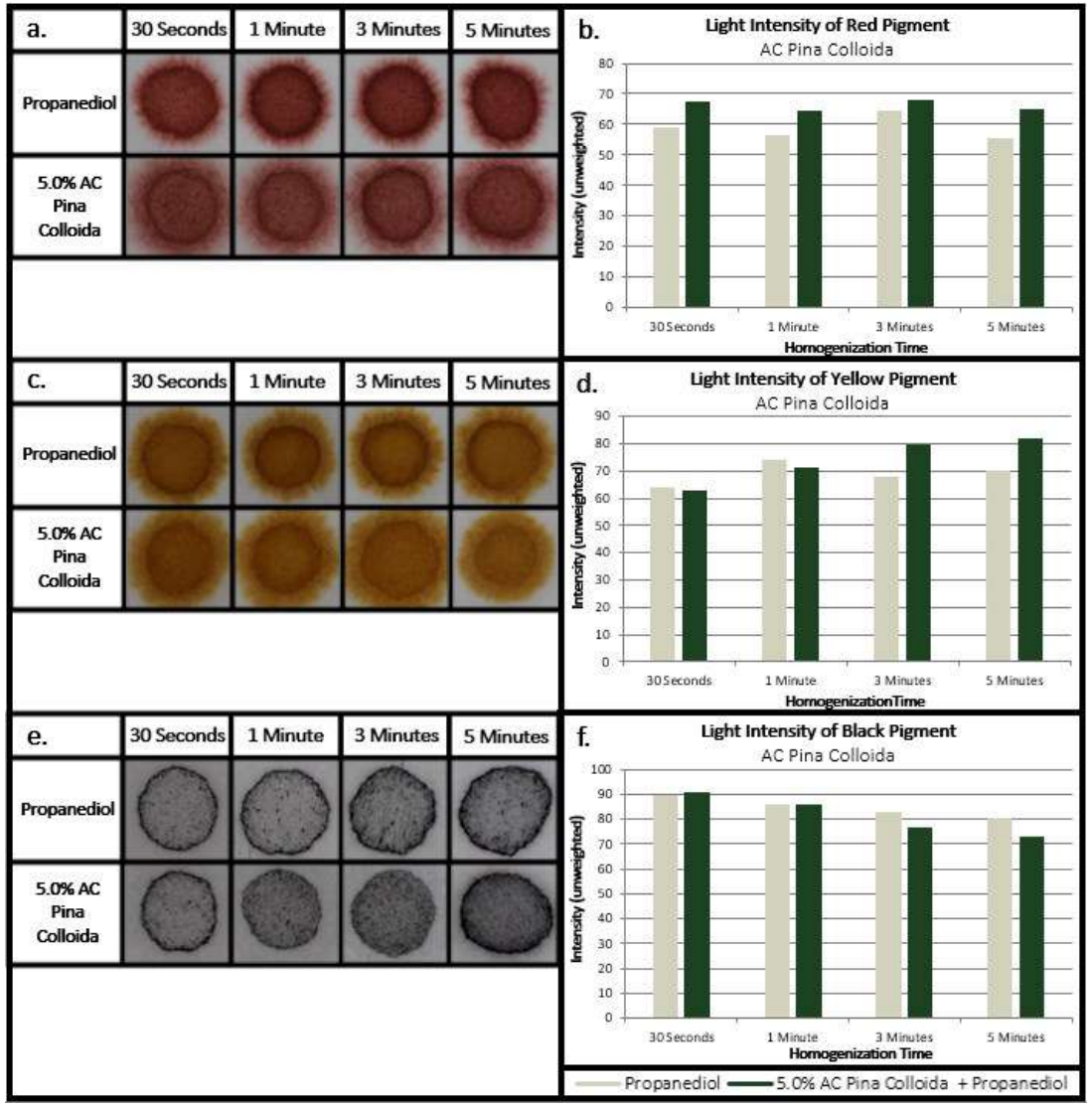


Figure 10. Color Intensity Analysis for 1.0% Unipure Red LC 381 BA (a-b), 2.0% Unipure Yellow LC 182 BA (c-d), & 0.5% Unipure Black LC 989 BA (e-f) in Propanediol and 5.0% AC Pina Colloida Over Time

5.0% AC Pina Colloida reduced particle agglomeration in the four-pigment blend, compared to propanediol by

-39%

Benefits

AC Pina Colloida demonstrates effective pigment dispersing properties which improves overall skin coverage and product appearance.

SPF Pigment Dispersion Assay

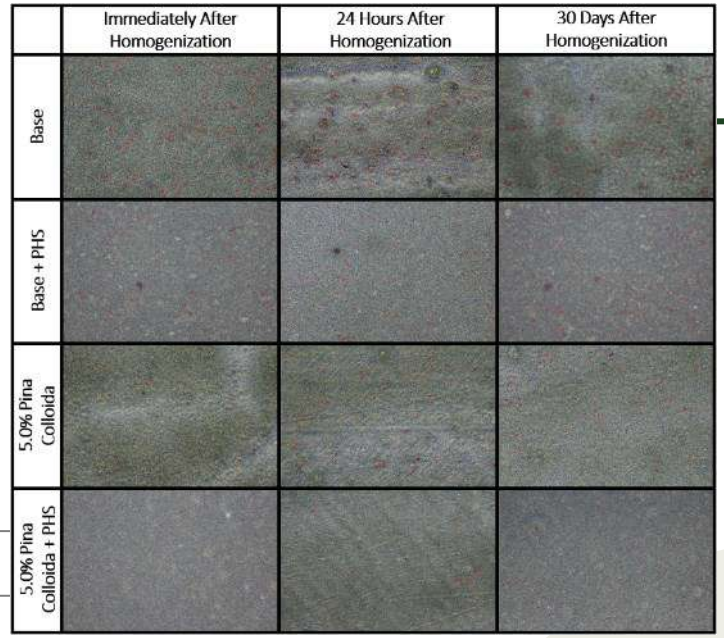


Figure 11. Images of pigment dispersions over time; agglomerates are indicated by red circles

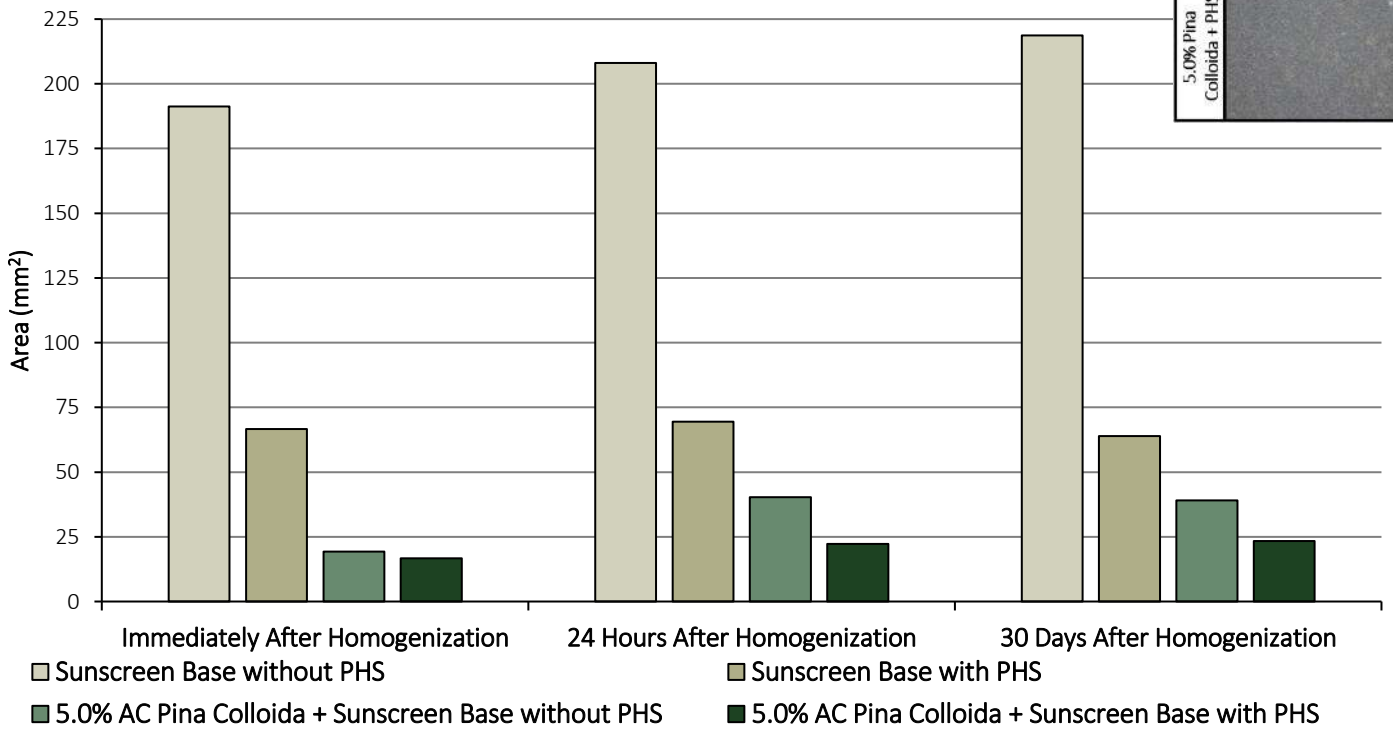


Figure 12. Area of Pigment Agglomerates (mm2) Over Time

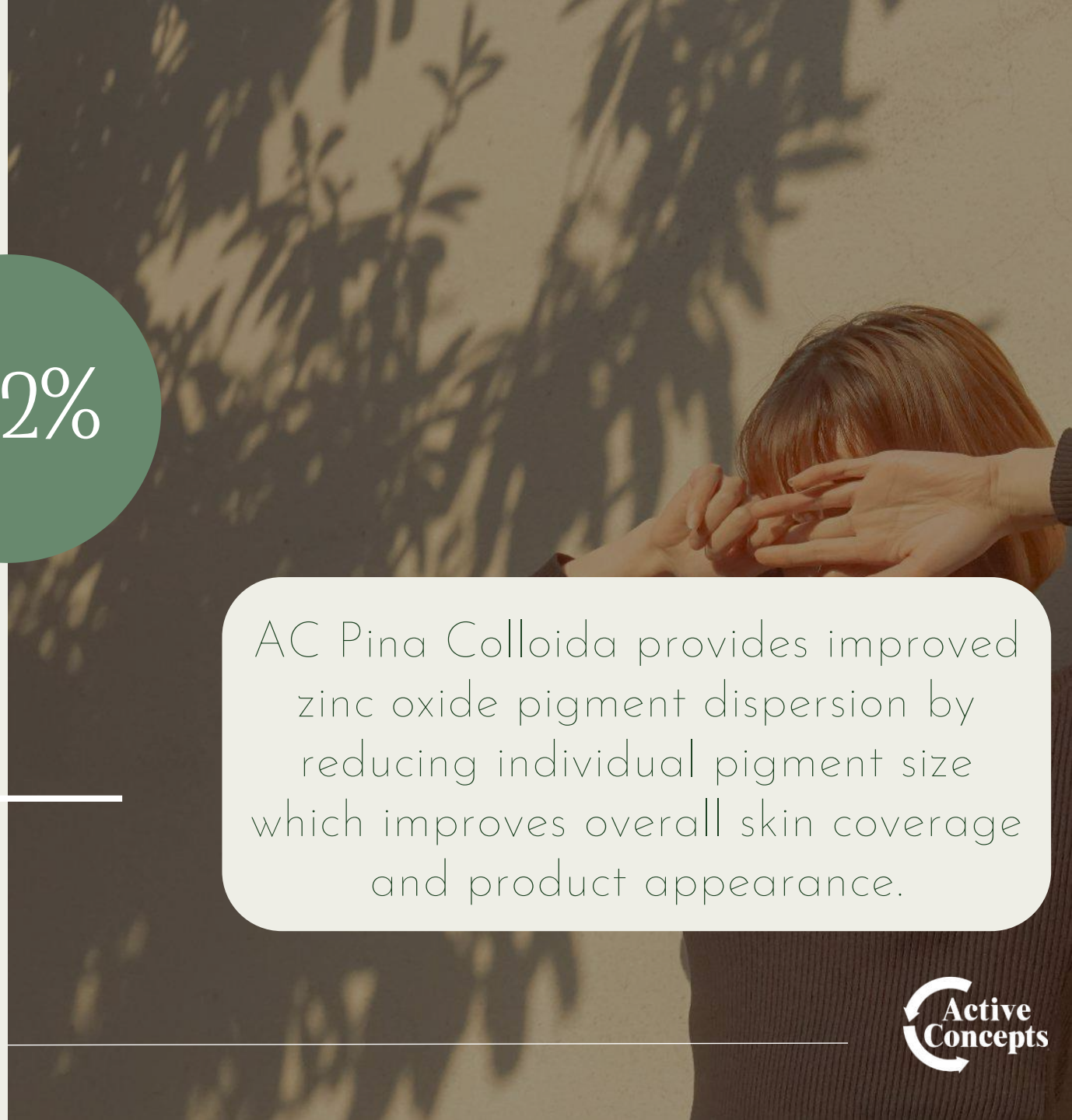
Mineral sunscreens containing zinc oxide are known to leave a chalky or bluish finish on the skin which is undesirable to consumers. Pigment size and dispersion play a key role in the appearance of a product on the skin. An evenly dispersed product contains small pigments and appears more natural on the skin. Reducing particle size and agglomeration increases pigment transparency, resulting in a more desirable finish on the skin.

5.0% AC Pina Colloida significantly reduced pigment agglomeration area compared to the Base after 30 days by

-82%

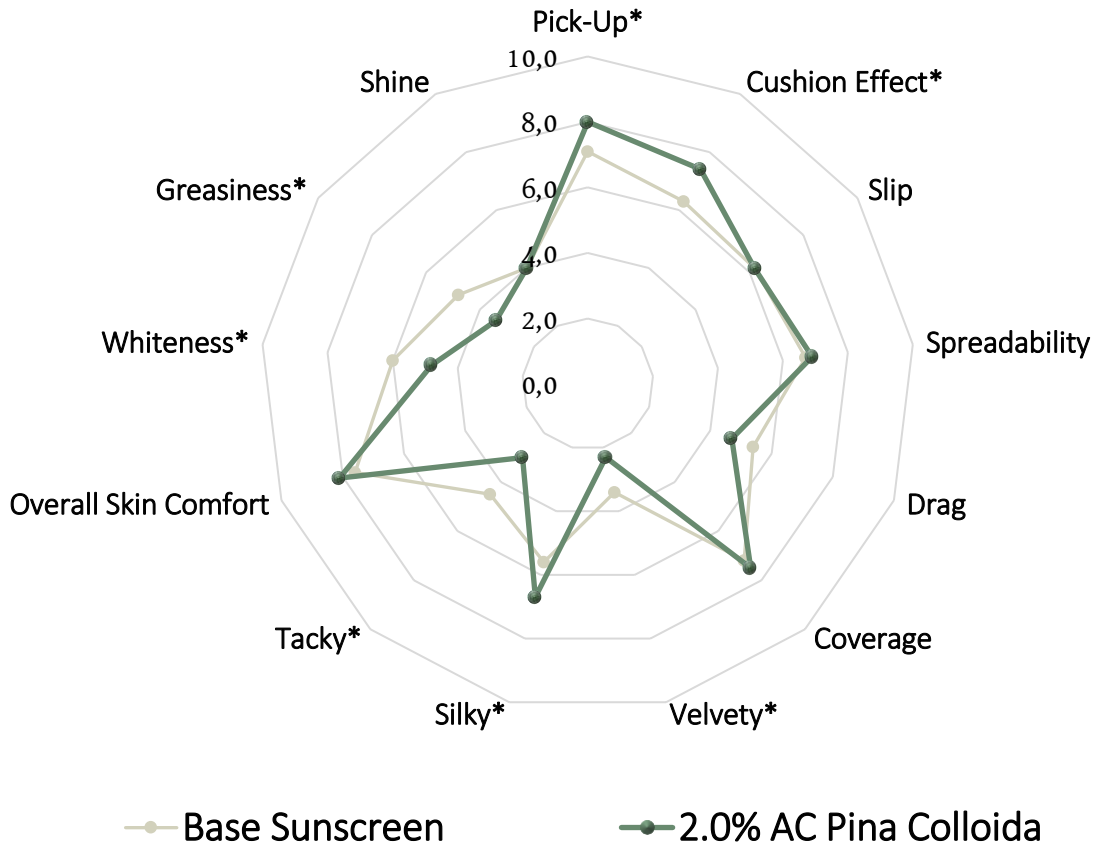
Benefits

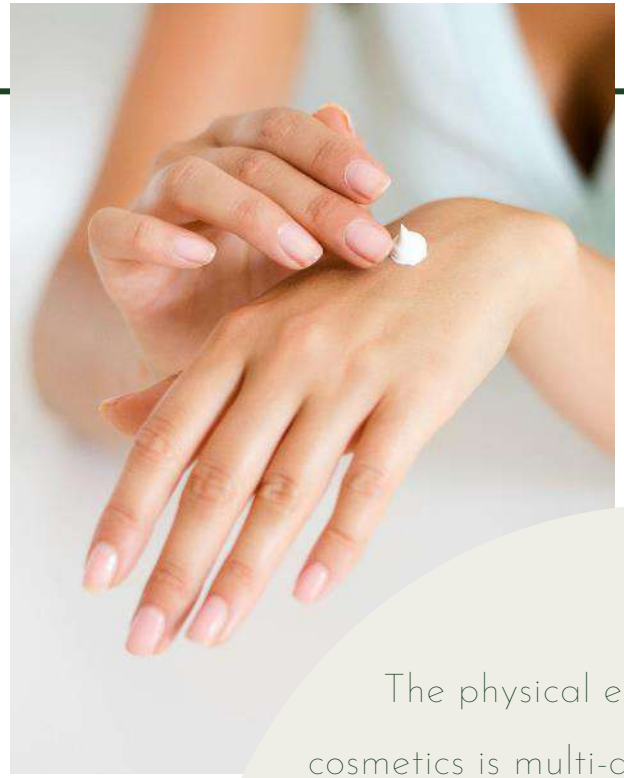
AC Pina Colloida provides improved zinc oxide pigment dispersion by reducing individual pigment size which improves overall skin coverage and product appearance.



Active Concepts

Triangle Test



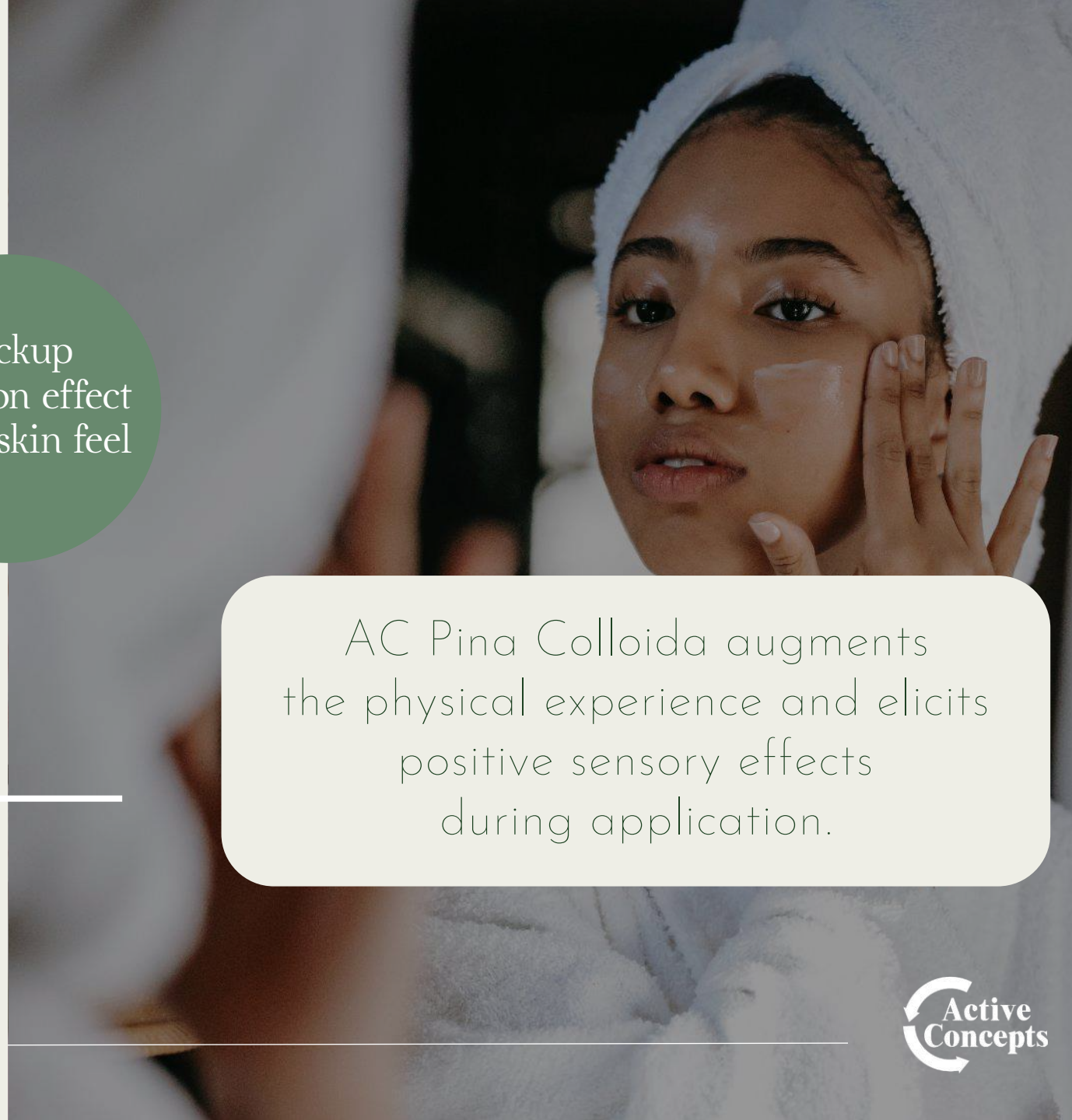


The physical experience of applying cosmetics is multi-dimensional and influences how consumers perceive products, demonstrating the importance of quantifying the sensory effects of a cosmetic product during application. This study was conducted to determine if there is a detectable difference when AC Pina Colloida is added to a personal care product.

2.0% AC Pina Colloida in a sunscreen is easier to pickup and moves easily across skin, leaveing behind less whiteness and greasiness, without a sticky or powdery after-feel when compared to the base sunscreen.

Benefits

+ pickup
+ cushion effect
+ silky skin feel



AC Pina Colloida augments the physical experience and elicits positive sensory effects during application.

Active Concepts

AC Pina Colloida

Code: 12053

INCI US- Water & Ananas Sativus (Pineapple) Fiber Crosspolymer & Lactobacillus Ferment

- **INCI** EU/China- Water & Ananas Sativus (Pineapple) Fruit & Yeast Polysaccharides & Lactobacillus Ferment

Appearance: Clear to Slightly Hazy Liquid - Colorless to Yellow

Suggested Use Level: 1-10%

Suggested Applications: Antipollution . Anti-Aging . Skin & Hair Protection . Moisturization . Dispersant

In Vitro · In Vivo · ISO 16128 NI & NOI · Vegan Compliant · COSMOS Compliant · Product Passport

Active Concepts

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