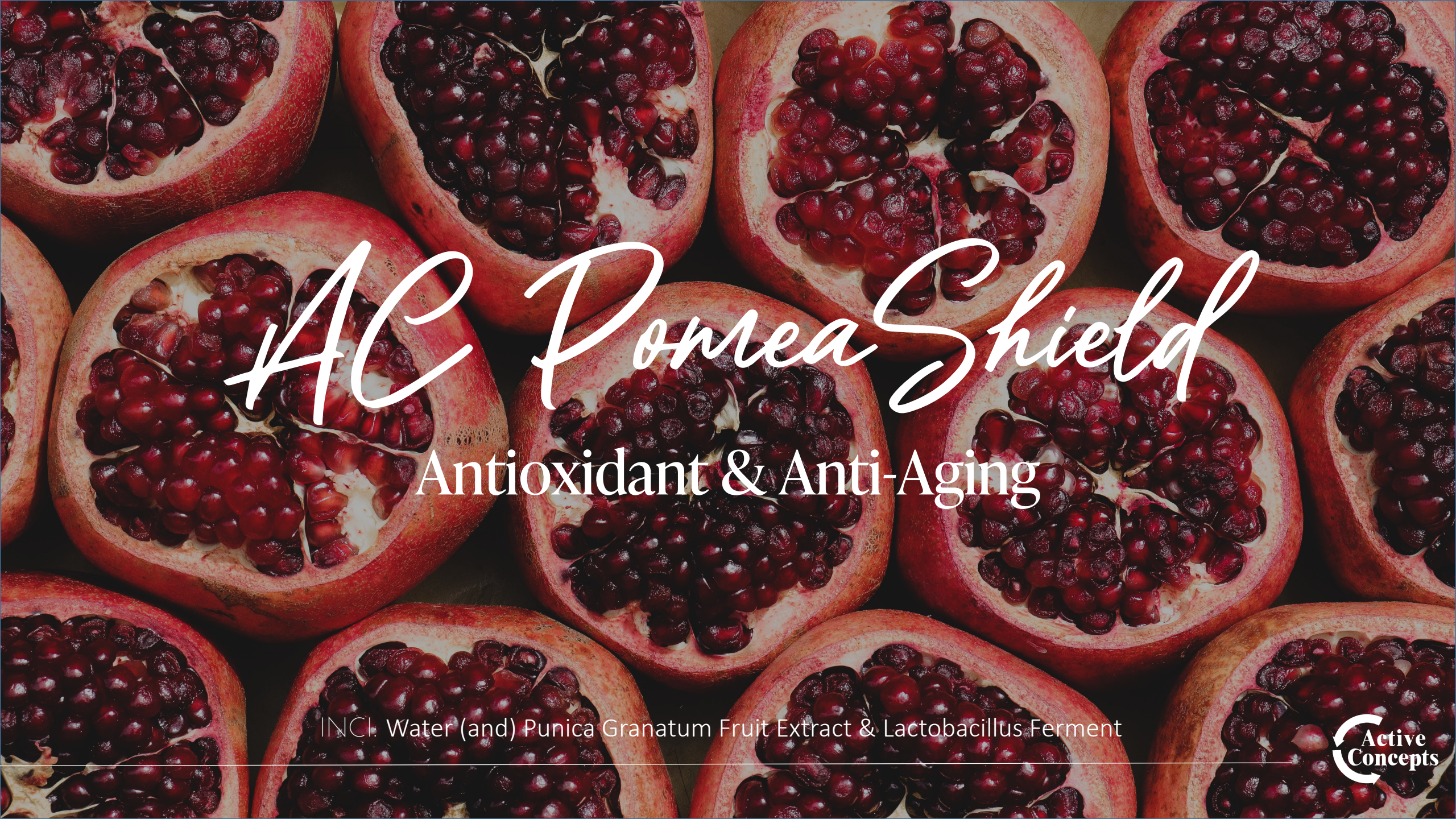


AC PomeaShield

Antioxidant & Anti-Aging

INCI: Water (and) Punica Granatum Fruit Extract & Lactobacillus Ferment

Active Concepts

Skincare Superfood

Since ancient times, pomegranates have been known for their medicinal and beauty benefits. In many cultures, it is touted as a symbol of **prosperity** and **abundance**.

Today, pomegranate is not only a delicious, juicy fruit, but it is a known **superfood** with numerous health and skincare benefits due to its high nutrient profile.

When it comes to skincare, the power of this fruit lies in its antioxidant **polyphenols.**

Polyphenols at Play

Pomegranates contain high levels of **polyphenols** including punicalagin, ellagic acid, gallotannins, anthocyanins, and other flavonoids.

The phenolic hydroxyl groups of polyphenols can decrease levels of free radicals and can also be used as **scavengers** to inhibit or eliminate the formation of free radicals.

Polyphenols are able to **prevent or delay senescence** formation by affecting molecular pathways of senescence and, thus, can exert beneficial effects on skin aging and age-associated skin diseases.

What is Cellular Senescence?

Active Concepts

As we age, our skin is exposed to many **stressors** including environmental insults which can **induce cellular damage**, specifically cellular senescence. Cellular senescence is a process that involves permanent **cell cycle arrest**.

The cells cease to divide and they start producing molecules that disrupt the function of neighboring cells and the surrounding tissues, leading to a decrease in the natural self-regenerative potential of the skin and a **reduction in the collagen and elastin** fibers that are associated with the skin's elasticity and firmness.

By **targeting senescent cells**, we can reduce the signs of aging.

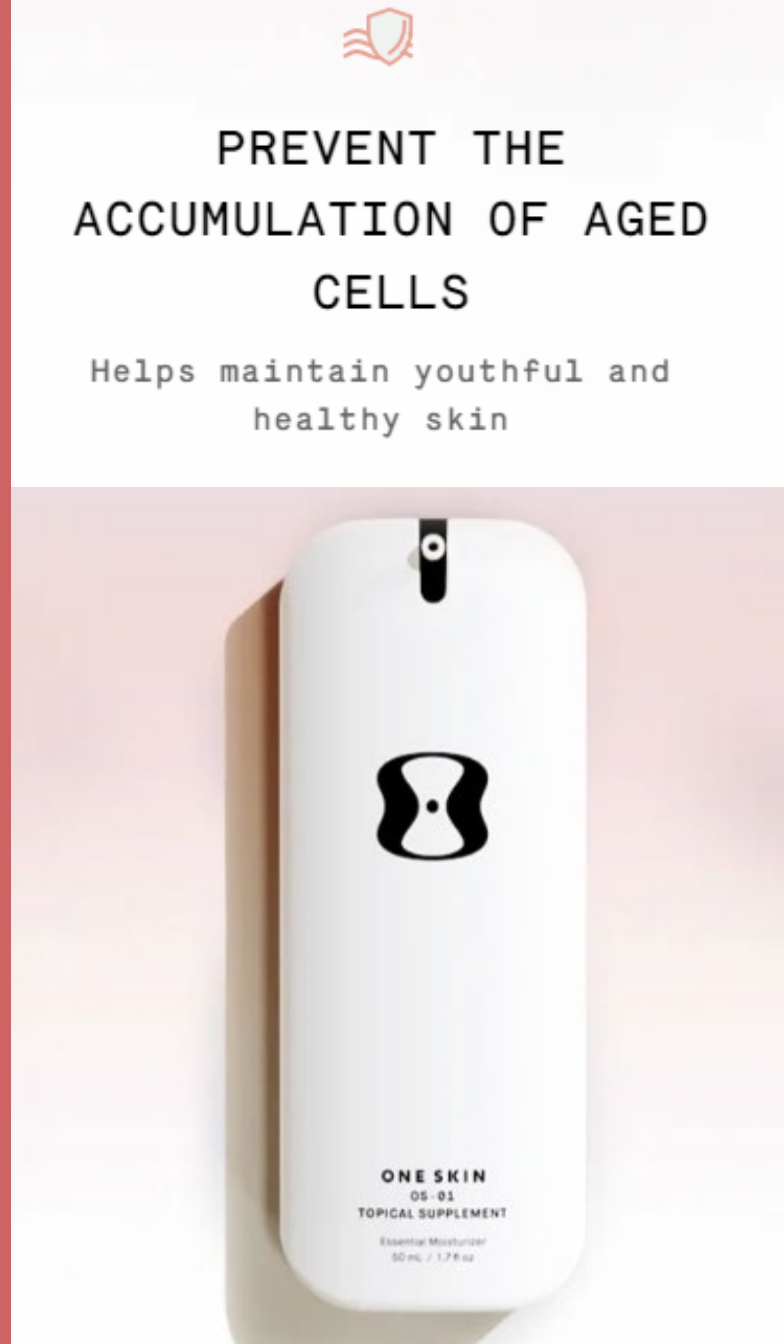
Market Insights – A look at Senescence

One Skin – OS-01 Topical Supplement

The first skin longevity treatment that extends skin health on the molecular level to address aging from within. Unlike other skincare products that offer short-term solutions, our Topical Supplements **target the root causes of aging** skin, including cellular damage and the **accumulation of aged skin cells**, for long-term, visible results. One Skin's patented anti-senescent compound **reduces the molecular age of skin cells**.

Skinspan refers to the length of time that your skin is healthy. For many, **healthy skin** presents as supple, smooth, and strong. Our mission is to extend your skinspan by optimizing skin health on a **molecular level**, increasing skin resilience and strength.

www.oneskin.co/products/



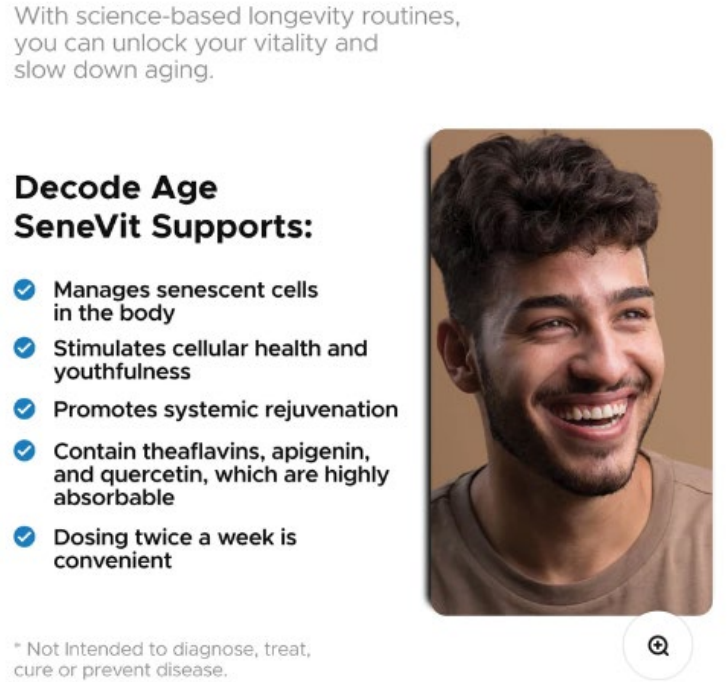
Market Insights – A look at Senescence

Decode Age – SeneVit Senolytic Activator

Our body's cells undergo a fixed number of divisions after which they enter a stable cell cycle arrest. The **senescent cells** are considered **'zombie-like'**, highly toxic in nature, and eat the surrounding cells, slowing tissue repair and **increasing age**. SeneVit breaks down and removes zombie cells in tissues, **reduces senescence burden**, and promotes healthy cellular function.

Senolytic process will start preventing tissue and organ damage while promoting cellular repair and healing. It promotes **healthy aging** and makes you look youthful.

https://decodeage.com



Sustainability is Key.

Responsible Beauty.

- ✓ 62% of Gen Z shoppers prefer to buy from sustainable brands.
- ✓ 73% are willing to pay more for sustainable products.
- ✓ Gen Z and Millennials are most likely to make purchase decisions based on personal, social, and environmental values.

Awareness of the need to act sustainably is growing among consumers of all ages, albeit at different rates. Brands and retailers who respond to consumer demand for sustainable products will be better placed to succeed. Let's reframe the personal care industry's perspective on waste.

Let's Talk Cradle to Cradle

Cradle to Cradle is a philosophy that **raw material waste** is not thrown away (known as 'from cradle to grave') but is **repurposed** to create new ingredient technologies.

When Active Concepts sources from **local farmers** and suppliers, we utilize **every part possible** of the plant material.

By this approach, the waste that is produced is minimized, all while producing incredible **ingredients with scientific efficacy**.

Using the Whole Pomegranate

Active Concepts

Mechanical grinding/milling of the fruit to obtain aqueous extract.

AC PomeaShield
Antioxidant & Anti-Aging

Fermentation of the residual plant matter to isolate and extract phytocompounds of interest such as enzymes and intact chaperone proteins.

ACB Modified Pomegranate Enzyme PF
Cellular Renewal

From the unused residual pulp fruit, seed oil is extracted. Pomegranate oils are fractioned and blended to give a sterol-rich balm.

ABS Pomegranate Sterols
Moisturizing & Unique Sensorial

Local Sourcing

USA

Our US facility sources pomegranates from San Joaquin Valley in Central California. These pomegranates are certified organic through California Certified Organic Farmers (CCOF). The standards held by CCOF work to enhance biodiversity & soil fertility while restoring and maintaining ecological harmony.

Italy

Our Italian facility sources pomegranates from the Valencian region of Spain. Always GMO-free, pesticide-free, and organic, ecological farmers are committed to practices that are sustainable and beneficial for their land yet effective for crop yield.

Taiwan

Our Taiwan facility sources pomegranates from India where they grow year-round. These farmers comply with the National Standards for Organic Production (NSOP) by growing crops organically without the use of chemical fertilizers, pesticides, or hormones.

The use of whole organic pomegranates for sustainable provenance.

Active Concepts

Benefits

AC PomeaShield is an **antioxidant** and **anti-aging** powerhouse ingredient.

Its antioxidant polyphenols **scavenge reactive oxygen species** (ROS) to help prevent premature aging.

AC PomeaShield employs polyphenols to **delay senescent cells** which contribute to cellular aging.

This innovative ingredient technology helps to **increase elastin** synthesis in fibroblasts which is key to the skin's structural integrity.

Additionally, it capitalizes on a strong **sustainability story** with a Cradle to Cradle approach.

Testing Profile

In Vitro .

- SA-Beta-gal Activity
- Elastin ELISA
- ROS Assay
- Cellular Detoxification Assay

In Vivo .

- Moisturization Assay
- TEWL Assay
- Shine Reduction Assay

Safety & Toxicology.

- AMES Test Report
- Dermal & Ocular Irritation Tests
- MTT Cell Viability Assay
- OECD 201 Freshwater Alga Growth Inhibition Test
- OECD 301B Ready Biodegradability Assay
- OECD TG 442C Direct Peptide Reactivity Assay
- OECD TG 442D In vitro Skin Sensitization Report

Active Concepts

SA-β-gal Activity

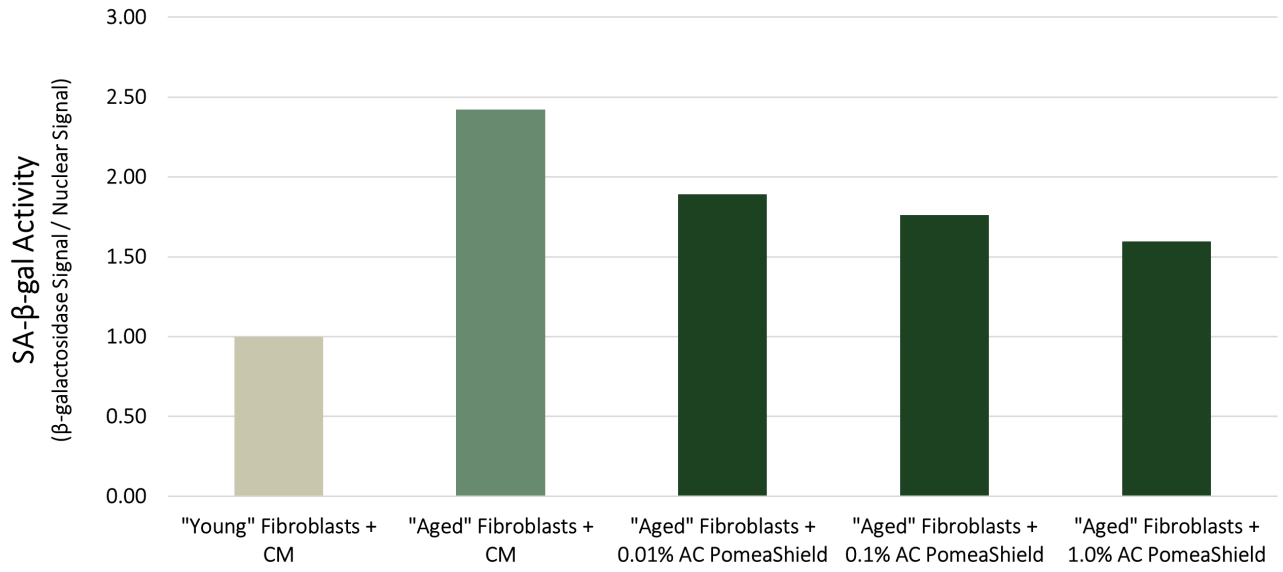
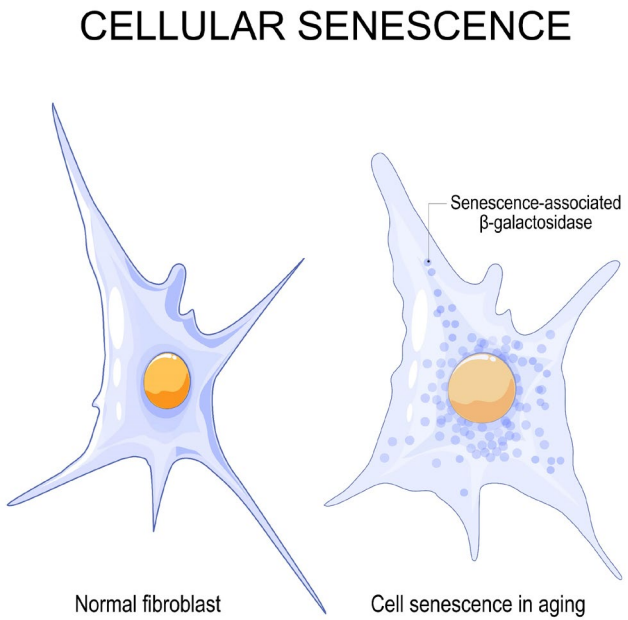


Fig 1. Effect of AC PomeaShield on Cellular Senescence Levels in "Aged" Fibroblasts.



Senescence is characterized by changes in cellular morphology, metabolism, signaling pathways, and biochemical profiles that manifest as increased collagen breakdown, wrinkles, and thin skin. SA-β-gal is the gold standard biomarker to identify senescence *in vitro* as the enzyme β-galactosidase explicitly accumulates in the lysosomes of senescent cells.

AC PomeaShield at 0.1% elicited a reduction in SA-β-gal activity compared to untreated "aged" fibroblasts by

27%

Benefits

AC PomeaShield reduces cellular senescenece and may attenuate or reverse the alterations in skin structure and physiology that occur during aging.

Active Concepts

Elastin ELISA

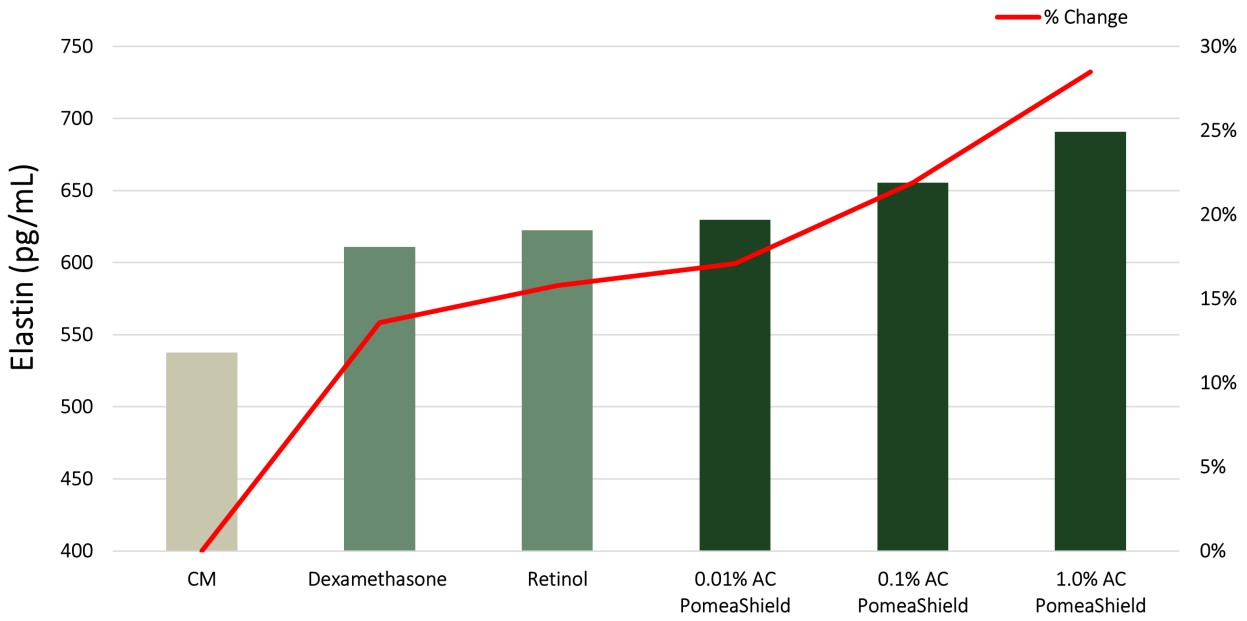
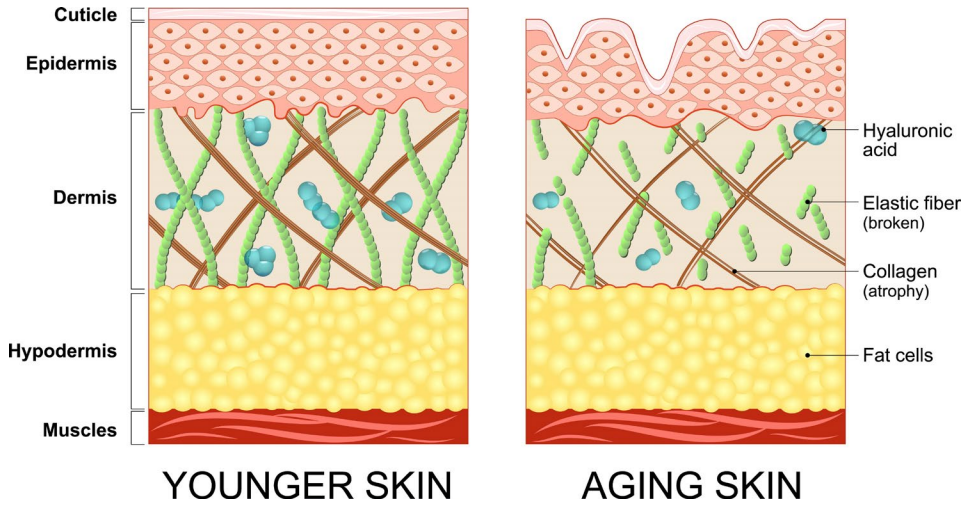


Fig 2. Effect of AC PomeaShield on Intracellular Concentrations of Elastin.



With age and exposure to environmental insults, elastic fibers degrade. This degradation contributes to the loss of the skin's structural integrity; combined with subcutaneous fat loss, this results in looser, sagging skin, causing undesirable changes in appearance.

AC PomeaShield at 0.1% augmented intracellular elastin concentrations by

22%

Benefits

These data indicate AC PomeaShield has the ability to increase elastin levels in fibroblasts. This provides an environment which could decrease the signs of aging and reduce the formation of fine lines and wrinkles.

Active Concepts

ROS Scavenging Assay

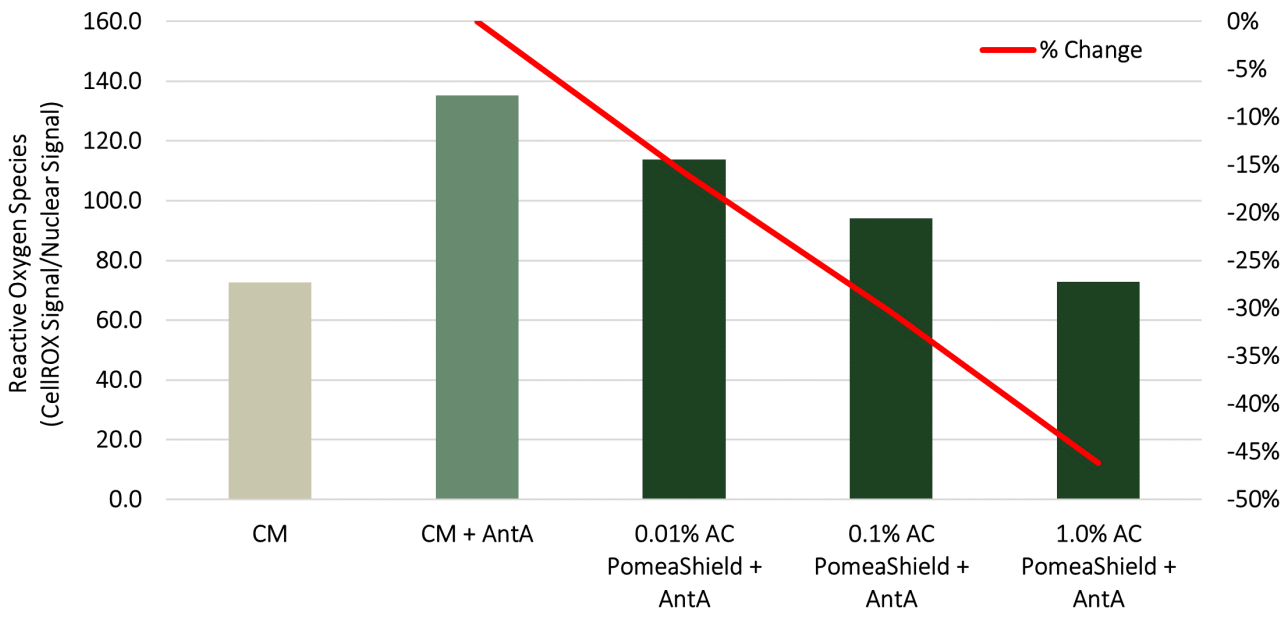
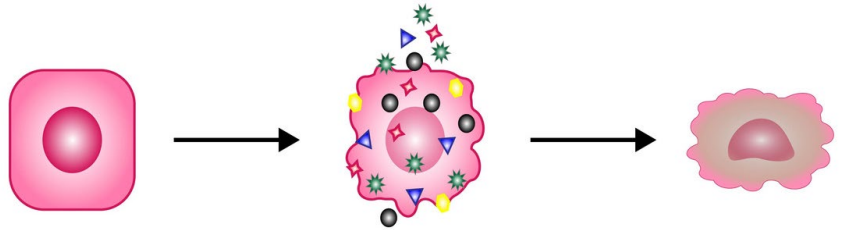


Fig 3. Effect of AC PomeaShield on ROS Scavenging.

Oxidative Stress



Free radical damage is linked to formation of many degenerative diseases and aging. Excessive reactive oxygen species (ROS) formation can induce oxidative stress, leading to cell damage that can culminate in cell death. Antioxidants can attenuate the damaging effects of ROS *in vitro* and delay many events that contribute to cellular aging.

AC PomeaShield at 0.1% decreased ROS levels by

30%

Benefits

These data indicate AC PomeaShield scavenges unnecessary ROS, which may help to attenuate characteristics of cellular aging.

Active Concepts

Cellular Detoxification Assay

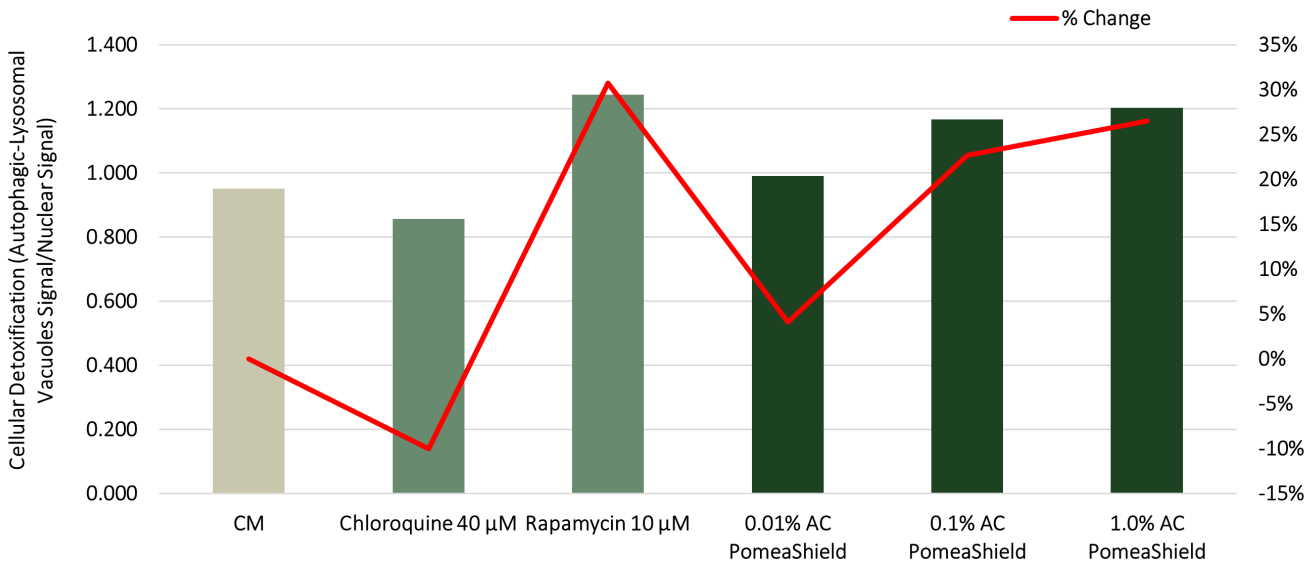
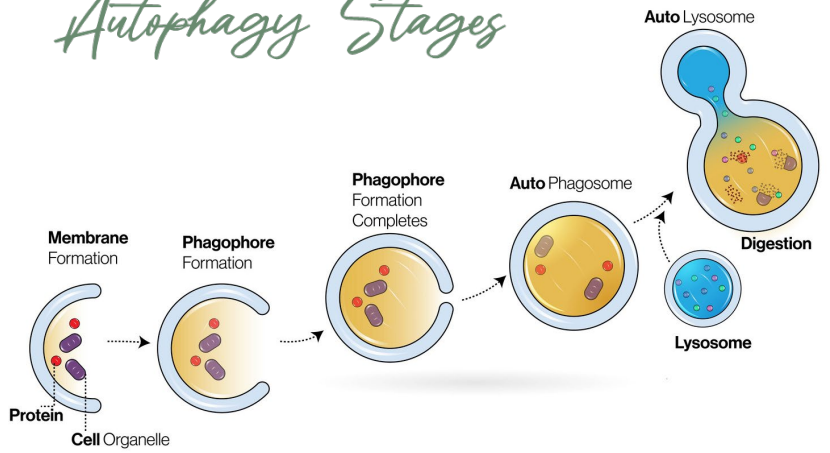


Fig 4. Effect of AC PomeaShield on Fibroblast Cellular Detoxification.

Autophagy Stages



Autophagy is the self-identification and delivery of damaged cellular proteins and organelles, intracellular microbes, and toxins to lysosomal vacuoles for breakdown. Cellular detoxification can be manipulated by topical application of certain ingredients that trigger autophagy in dermal fibroblasts.

AC PomeaShield at 0.1% increased autophagic activity compared to untreated fibroblasts by

23%

Benefits

These data indicate AC PomeaShield triggers this cellular detoxification process, which may help to attenuate characteristics of cellular aging.

Active Concepts

Moisturization Assay

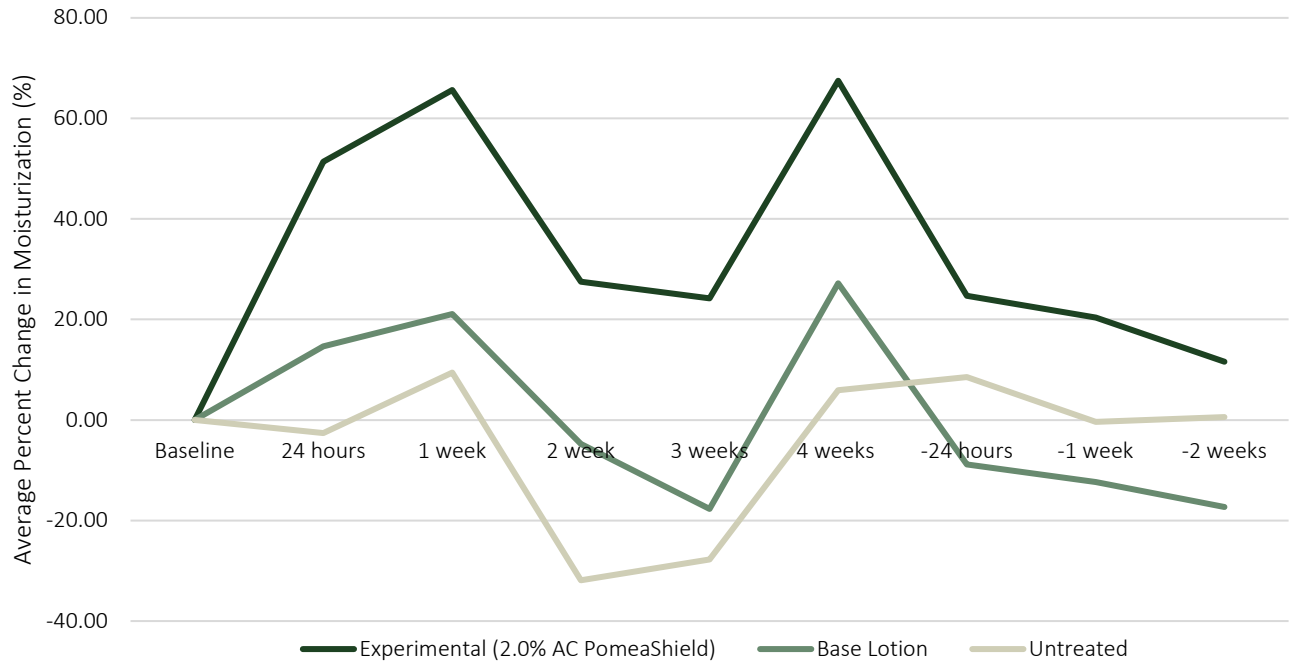


Fig 5. Percent Change in Moisturization of Each Time Point Compared to Baseline.

An *in vivo* study was conducted over a period of four weeks to evaluate the moisturization benefits of AC PomeaShield.

20 M/F subjects between the ages of 23-45 participated in the study.

A Dermalab Corneometer was used to measure the moisture levels on the subject's volar forearms.

After 4 weeks, AC PomeaShield at 2.0% increased skin moisture levels compared to baseline by

67%

Benefits

These data indicate AC PomeaShield is capable of providing moisturizing and hydrating benefits.

Active Concepts

Transepidermal Water Loss Assay

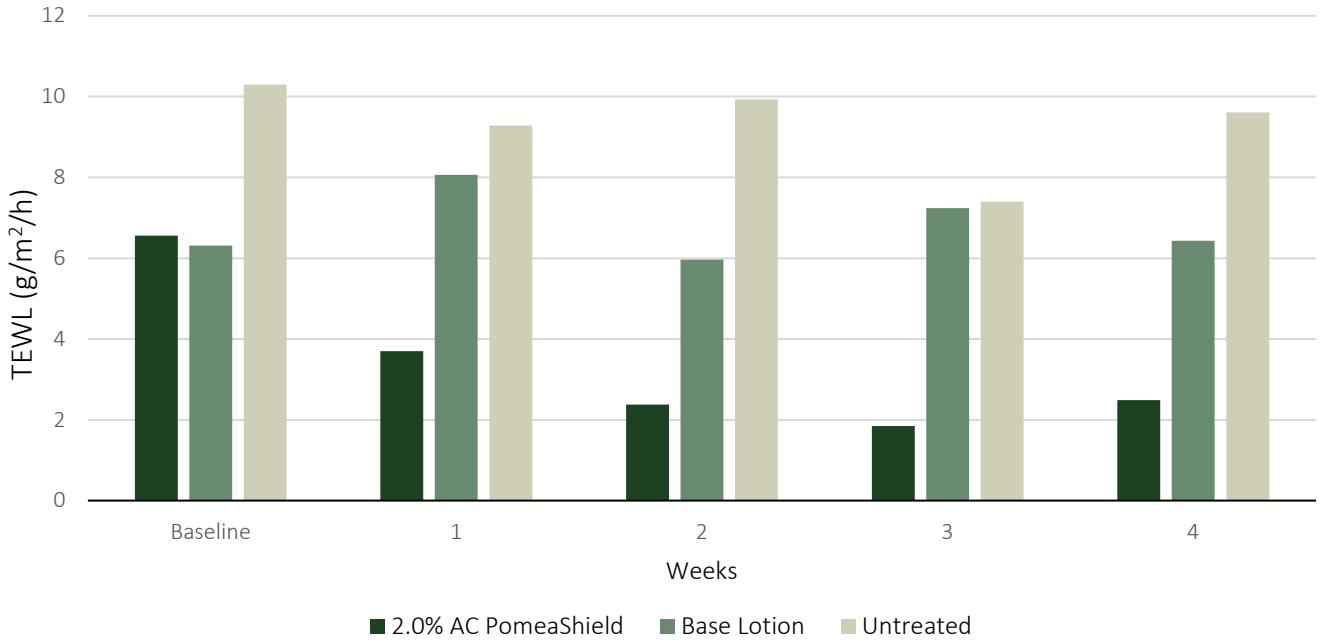


Fig 6. Average TEWL Measurements Taken at Individual Sites

An *in vivo* study was conducted over a period of four weeks to evaluate the ability of AC PomeaShield to enhance barrier function through reduction in TEWL.

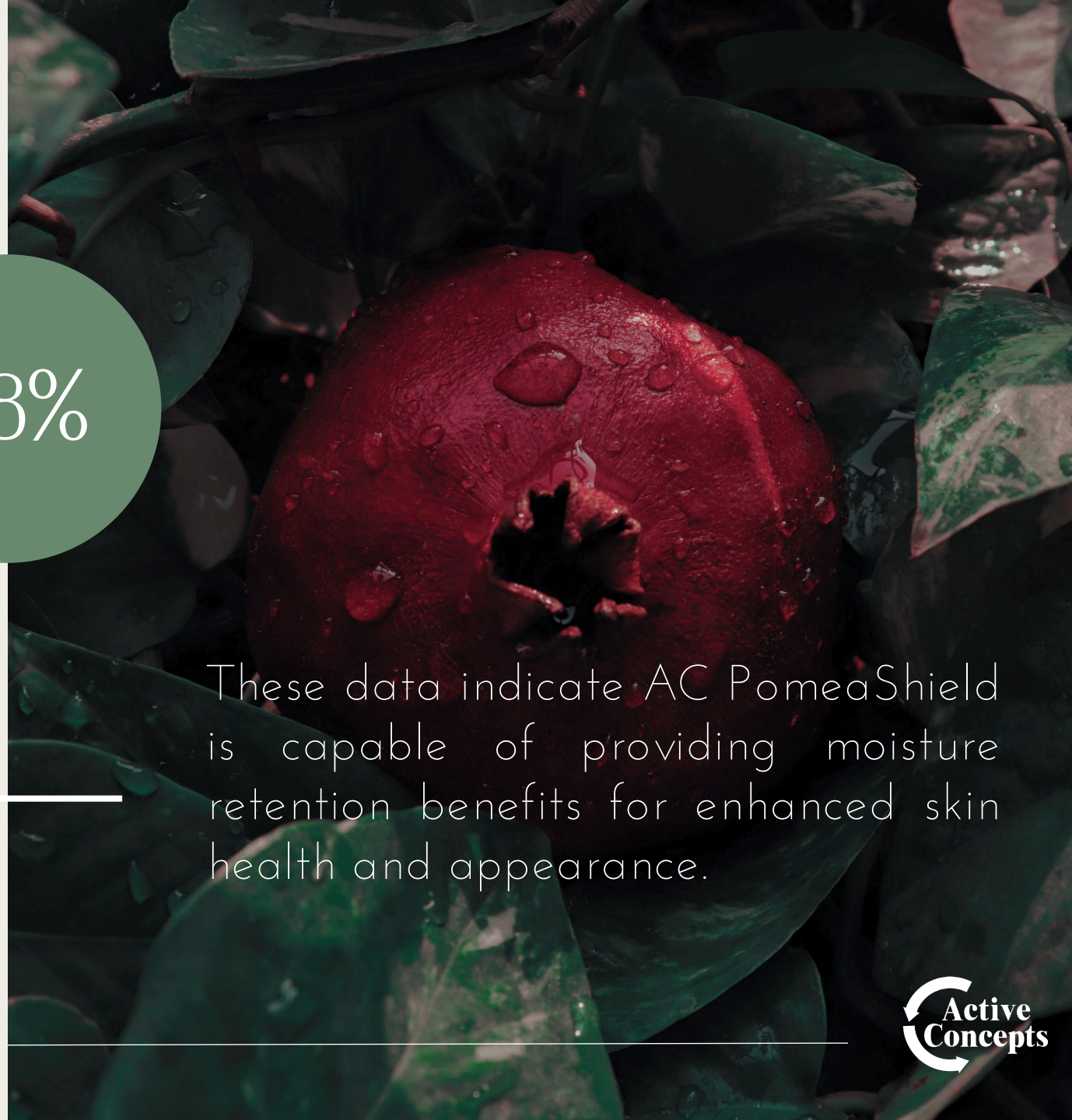
20 M/F subjects between the ages of 23-45 participated in the study.

A DermaLab Combo was used to measure TEWL on the subject's volar forearms.

After 4 weeks, AC PomeaShield at 2.0% effectively reduced transepidermal water loss compared to the untreated control by

118%

Benefits



These data indicate AC PomeaShield is capable of providing moisture retention benefits for enhanced skin health and appearance.

Active Concepts

Shine Reduction Assay

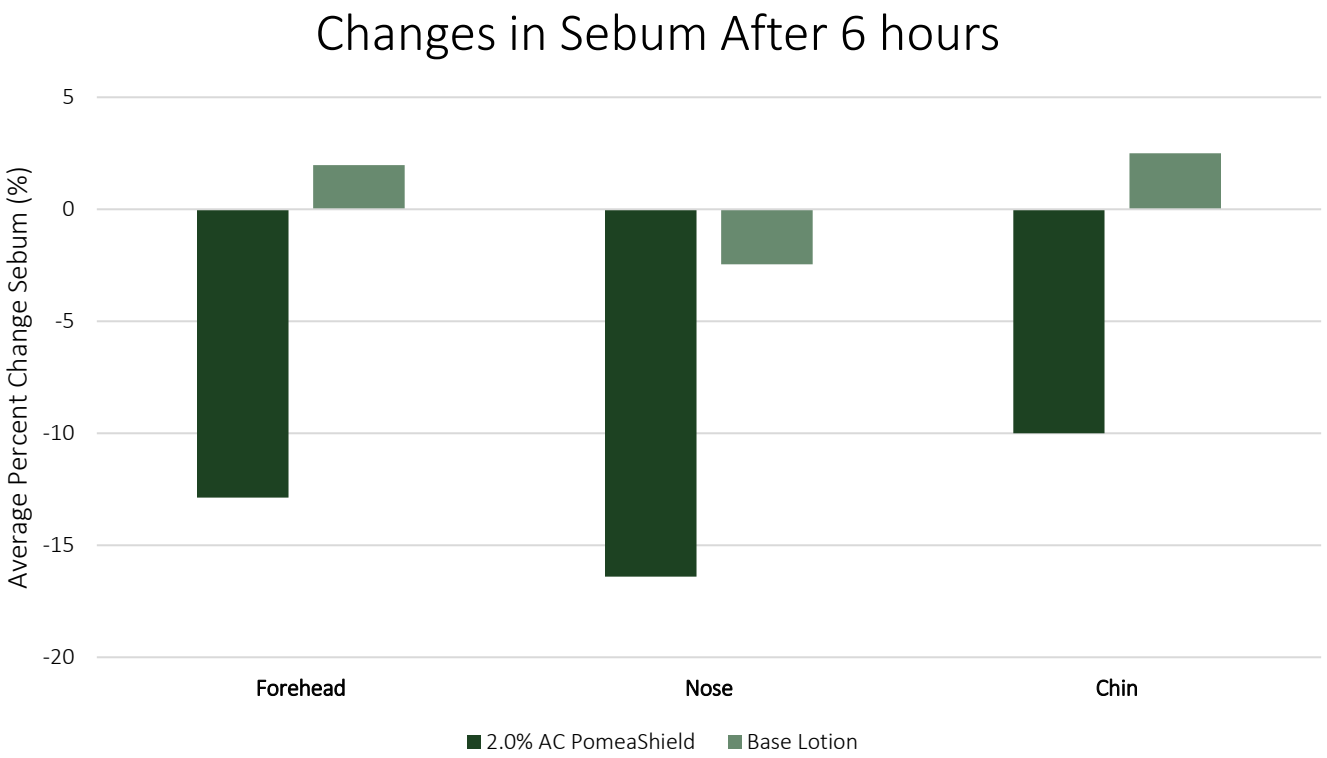
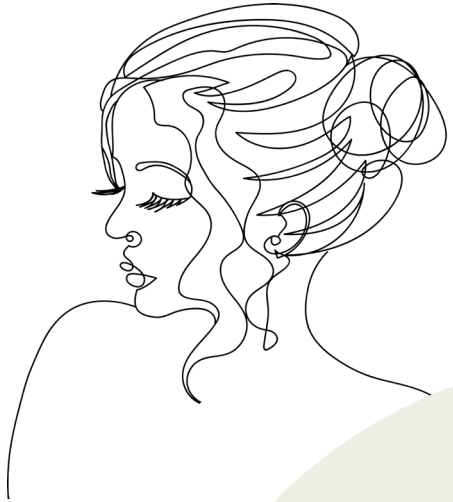


Fig 7. Change in Sebum after 6 hours at Each Test Site for Each Test Material.



An *in vivo* study was conducted over a period of six hours to evaluate the ability of AC PomeaShield to reduce facial sebum when incorporated into a base lotion.

20 M/F subjects between the ages of 22-40 participated in the study.

A Dermalab skin combo with sebum collecting strips was used to measure the sebum levels.

After 6 hours, AC PomeaShield at 2.0% effectively decreased sebum levels on the forehead compared to the base lotion by

16%

Benefits

These data indicate AC PomeaShield is capable of decreasing sebum production and ultimately reducing shine on the skin.

Active Concepts

Summary

WHAT. AC PomeaShield utilizes a Cradle to Cradle approach to reduce waste and capitalizes on rich pomegranate polyphenols to create an efficacious ingredient with an abundance of skincare benefits.

WHY. AC PomeaShield employs polyphenols to eliminate the formation of free radicals and delay senescent cells.

MADE OF. AC PomeaShield is comprised of rich polyphenols extracted from the pomegranate fruit.

ACTION. AC PomeaShield is a functional cosmetic active that provides antioxidant activity and anti-aging benefits.

AC PomeaShield

Code: 16935

INCI: Water & Punica Granatum Fruit Extract & Lactobacillus Ferment

Appearance: Clear to Slightly Hazy Liquid, Yellow to Amber

Suggested Use Level: 1-10%

Suggested Applications: Antioxidant, Anti-aging

Standardized for: 3% Maximum Polyphenols

In Vitro

In Vivo

ISO 16128 NI & NOI

Vegan Compliant

COSMOS Compliant

China Compliant

Product Passport

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