

60194.

AC ExoTone

DELIVERY SYSTEM



VEGAN



COSMOS



IN VITRO



IN VIVO



CHINA



ISO 16128



PRODUCT
PASSPORT



THE FEATURES.

Active Concepts aims to evolve the modern incarnations of cosmetic delivery systems through the use of BioAuthentic Exosomes. While exosomes currently available in the market are typically sourced from animal or human stem cells, primarily targeting anti-aging benefits, Active Concepts pioneers a natural approach to delivery systems while broadening the spectrum of benefits. Introducing AC ExoTone, a natural exosomal delivery system that encapsulates upcycled apple extract, utilizing apple's alpha hydroxy acid content to exfoliate the skin and even skin tone. In many cultures, an even skin tone is considered a standard of beauty and is a significant motivator for consumers. AC ExoTone provides a natural delivery system to increase the bioavailability of skin-harmonizing properties.

Water & Pyrus Malus (Apple) Fruit Extract & Phospholipids

Actions

**BioAuthentic Exosome
Harmonize Skin Tone
Cellular Renewal
Upcycled Apples**

TECHNICAL DATA SHEET.

THE REGULATION.

INCI. Water & Pyrus Malus (Apple) Fruit Extract & Phospholipids
CAS. 7732-18-5 & 85251-63-4 & 123465-35-0 (OR) 8002-43-5
EINECS. 231-791-2 & 286-475-7 & N/A (OR) 232-307-2
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

THE SPECIFICATION.

Origin. Botanical & Bacteria
Natural Antimicrobial. Lactobacillus Ferment
Preservatives. None
Solvents Used. Water
Soluble/Miscible. Water Dispersible
Appearance. Liquid Exosomal Dispersion, Light Beige to Tan
Use Level. 1- 10 %



THE STORY.

Delivery systems act as the trusted couriers of the beauty world. At the intersection of beauty and science, these vesicles ensure the effective delivery of cosmetic actives to consumers in their personal care products. However, to stay competitive in the ever-changing industry, Active Concepts has evolved modern incarnations of well-known delivery systems. While conventional delivery systems rely on synthetic means, our company proudly champions green chemistry and sustainability. As is our signature approach, we turned to nature for the answer to craft a solution that harmonizes with both the skin and the planet.

Adding to our delivery system technology platform, Active Concepts introduces BioAuthentic Exosomes — natural vesicles that are functionally identical to exosomes, extracted from natural sources, and target specific benefits. AC ExoTone is intended to harmonize skin tone by reducing hyperpigmentation and increasing cellular renewal. Apples are known to contain alpha hydroxy acids which chemically exfoliate the skin, leaving behind a brighter and more even appearance. While we have sourcing in Italy and Taiwan, Active Concepts' headquarters is located in Lincolnton, North Carolina, where once a year the Lincoln County Apple Festival occurs. This festival attracts more than 80,000 visitors and is a product of a volunteer board of directors who are determined to keep this small town safe and family-friendly. At the end of this festival, apples that weren't sold and that would have gone to waste get upcycled by Active Concepts into this efficacious ingredient. Our company prides itself on making connections, and this one hits close to home.

In many cultures, even skin tone is considered a standard of beauty and is a significant motivator for consumers. Exposed to stressors and pollutants every day, it is easy to acquire hyperpigmentation and UV spots. AC ExoTone utilizes upcycled apple extract in an exosomal delivery system to enhance the benefits of harmonizing skin tone.

THE SCIENCE.

By definition, exosomes are the smallest forms of extracellular vesicles and are natural, membrane-derived particles¹. They are shed by most cells in response to intracellular and extracellular stimuli. With their ability to increase cell-to-cell contact and intracellular communication, exosomes are efficient at enhancing the delivery and bioavailability of actives to intended cells². As an active area of research, exosomes are mainly used in the pharmaceutical space, harnessing their therapeutic and diagnostic potential. Exosomes are emerging in the personal care industry as well, however, they are only being marketed towards skin rejuvenation, anti-aging, and are derived from human or animal stem cells. As Active Concepts realizes most brands are not a one-stop shop, our exosome line provides significant advances in delivery system brand differentiation with natural origins and a plethora of benefits to choose from.

The growing popularity of apples has led to their usage outside the food industry. The significance of apples in the personal care industry is due to their content of alpha hydroxy acids³, or AHAs, which promote the appearance of healthier and smoother skin. The idea of using AHA technology was inspired by chemical peel treatments used by dermatologists to treat various skin conditions. AHAs are able to bind to cell adhesion molecules and reduce the calcium ion concentration, therefore disrupting cellular adhesion⁴. This results in the desquamation, or shedding, of the outermost layer of the skin. This reduction of calcium ion levels promotes cell growth and cellular differentiation, leaving behind a more refreshed and youthful appearance.

Physical exfoliation methods can cause microtears in the skin, causing a disrupted skin barrier. The use of alpha hydroxy acids from upcycled apples in an exosomal delivery system will safely enhance the benefits of cellular renewal, reduce hyperpigmentation, and even skin tone.

THE BENEFITS.

Skin

Decrease Melanin Production Tyrosinase Inhibition



Leave Behind Brighter Skin Cellular Renewal Assay



Harmonize Skin Complexion VISIA: Reduction in Cumulative Spots



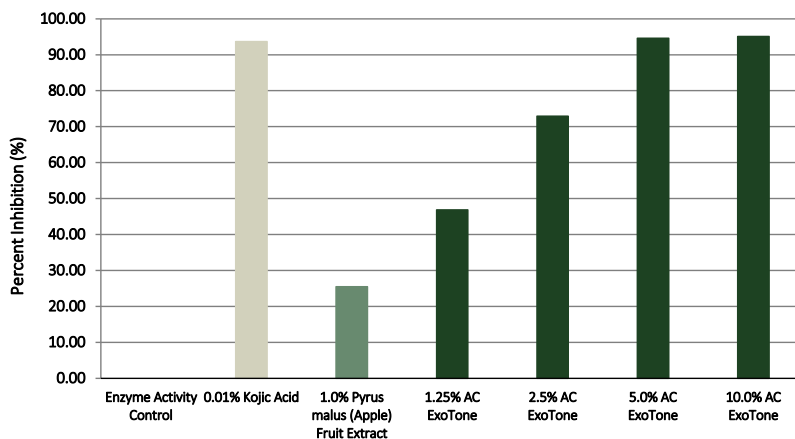
Rid Skin of UV Damage VISIA: Reduction in UV Spots



THE EFFICACY.

Tyrosinase Inhibition.

A tyrosinase inhibition assay was conducted to determine the ability of AC ExoTone to inhibit tyrosinase, a key enzyme in melanin synthesis, indicating a potential component to reduce hyperpigmentation. The key active ingredient in AC ExoTone, *Pyrus malus* (Apple) Fruit Extract, was tested to demonstrate the superior nature of BioAuthentic Exosomes as a delivery system.



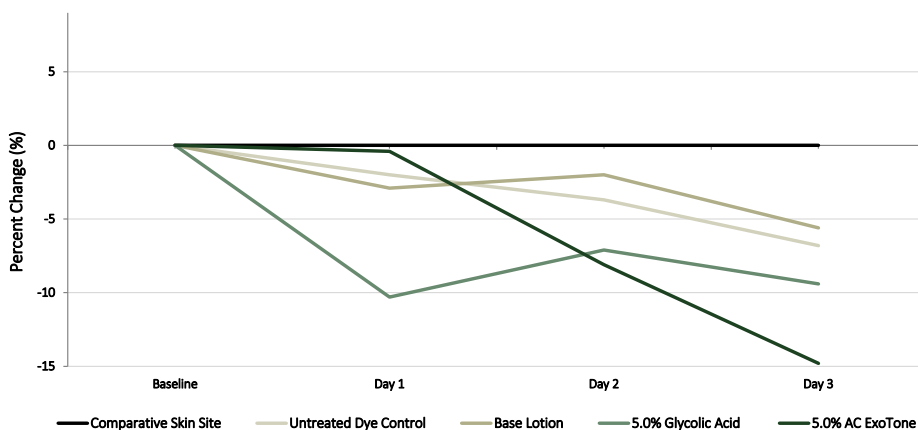
AC ExoTone effectively inhibited tyrosinase by 47% compared to *Pyrus malus* (Apple) Fruit Extract's 25%.
(tested at 1.25%)

Skin Lightening.

Reduce Hyperpigmentation & Even Skin Tone

Cellular Renewal Assay.

AC ExoTone was evaluated for its ability to accelerate cell renewal by means of a traditional skin pigmentation assay protocol. M/F volunteers, free of any skin pathologies, applied Derma Dye Max™ to four identified test patches on the volar forearm and let it develop for 24 hours. The fifth site was a control with no applications. Once baseline readings were taken, 0.2g of each lotion treatment, 5% glycolic acid positive control, 5% AC ExoTone, and the base formula were applied. Readings were taken every 24 hours for 3 days.



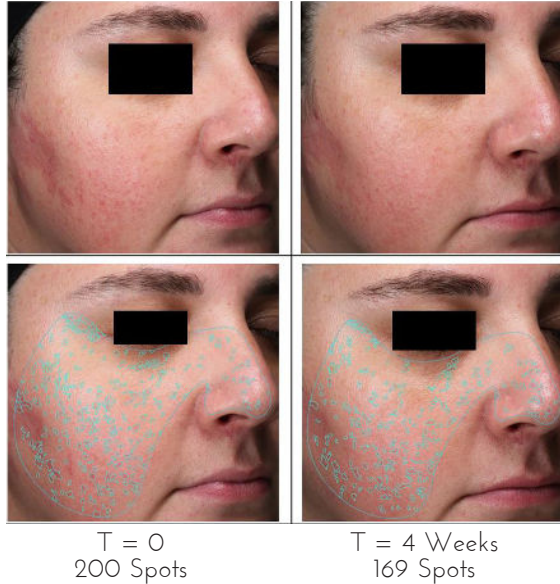
AC ExoTone induced a 15% change in pigmentation over four days compared to the untreated control and outperformed the positive control.
(tested at 5%)

Cellular Renewal.

Reverse Signs of Aging & Leave Behind a Brighter Skin Tone

VISIA: Reduction in Cumulative Spots.

An *in vivo* study was conducted over a period of six weeks to evaluate the effects of 3.0% AC ExoTone in a base lotion on cumulative spots compared to the base lotion alone. Photographic assessments were performed using the VISIA Complexion Analysis System, taking pictures with standard, cross-polarized, parallel-polarized, and ultraviolet light. Photos were taken of the 10 M/F participants once a week for the four-week use period and for two weeks after application.



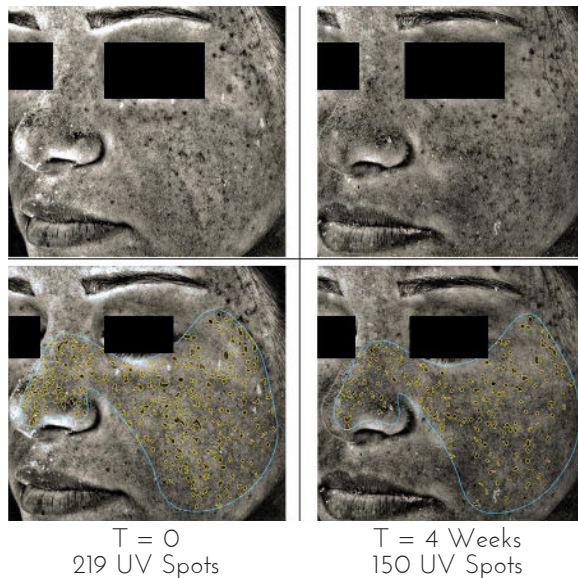
AC ExoTone demonstrated a 4% decrease in spot count compared to baseline, and decreased VISIA Simulated Skin Age by 1 year.
(tested at 3%)

Even Skin Tone.

Reduces Visual Skin Spots
&
Improves Skin Health

VISIA: Reduction in UV Spots.

An *in vivo* study was conducted over a period of six weeks to evaluate the effects of 3.0% AC ExoTone in a base lotion on UV Spots compared to the base lotion alone. Photographic assessments were performed using the VISIA Complexion Analysis System, taking pictures with standard, cross-polarized, parallel-polarized, and ultraviolet light. Photos were taken of the 10 M/F participants once a week for the four-week use period and for two weeks after application.



AC ExoTone demonstrated a 7% decrease in UV Spots compared to baseline, and decreased VISIA Simulated Skin Age by 1 year.
(tested at 3%)

Decreases Sun Damage.

Youthful Appearance
&
Reduction of Damage

References:

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2. Hannafon BN, Ding WQ. Intercellular communication by exosome-derived microRNAs in cancer. *Int J Mol Sci*. 2013 Jul 9;14(7):14240-69. doi: 10.3390/ijms140714240. PMID: 23839094; PMCID: PMC3742242.
3. Wanninger, Andrea, et al. "Upcycling of plant residuals to cosmetic ingredients." *Int. J. Agric. Eng. Technol. Soc. Sci* 1 (2020).
4. Kornhauser, Andrija, Sergio G. Coelho, and Vincent J. Hearing. "Applications of hydroxy acids: classification, mechanisms, and photoactivity." *Clinical, cosmetic and investigational dermatology* (2010): 135-142.

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