

20852.

AcquaSeal® Algae

Hydrating
Renewing
Anti-inflammation



VEGAN



SEPHORA
CLEAN



CREDO
CLEAN



GLOBALLY
COMPLIANT



COSMOS
COMPLIANT



CHINA



ISO 16128



PRODUCT
PASSPORT



THE FEATURES.

AcquaSeal® Algae is an oil soluble product designed to promote youthful skin, through several different mechanisms. Capable of providing cellular renewal, cellular hydration, cellular proliferation, and anti-inflammation benefits to defend against aging skin, AcquaSeal® Algae can be used in a wide variety of cosmetic and personal care applications. This unique ingredient can also be used to capitalize on the trends for sea-inspired cosmetics, while providing a young, refreshed look straight from the sea.

INCI: Chlamydomonas Reinhardtii Extract

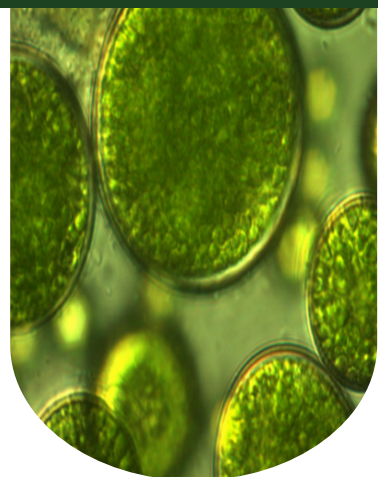
TECHNICAL DATA SHEET.

THE STORY.

Green algae inhabits a broad range of extreme habitats including fresh water, seawater, damp soil, and even snow¹. As a result of thriving in such diverse and extreme environments, green algae produce an array of unique bioactive complex lipids and fatty acids². The application of such lipids found in AcquaSeal® Algae can help to provide cellular renewal, cellular hydration, cellular proliferation, and anti-inflammation benefits to defend skin against the signs of aging.

Personal care and cosmetic ingredients that are sourced from nature, inspired by nature, bio-based, and sustainable are becoming more popular among consumers as natural beauty continues to gain traction in the global market. Active Concepts' focus on sustainable technology and green chemistry piqued our interest in algae derivatives as a sustainable and natural-based source of cosmetic benefits. Green algae have a great potential to generate oils and other valuable byproducts in a sustainable fashion, that can be used in cosmetics to endow the dermis with restorative and protective properties, plumping the skin by rehydrating skin cells³.

AcquaSeal® Algae contains algal lipid fractions derived from the green algae *Chlamydomonas reinhardtii*. These green algae when grown under defined high UV conditions produce a very high number of chloroplasts. After cell disruption, the chloroplasts are concentrated via density gradient separation. With proprietary technology, lipid fractions from the chloroplasts are isolated, providing cellular renewal, cellular hydration, cellular proliferation, and anti-inflammation benefits to defend against aging skin.



THE SCIENCE.

Skin aging is a complicated process. The aging we observe as individuals results from changes within the skin at the molecular, cellular and macroscopic level. The rate at which our appearance changes (deteriorates) is due to genetic factors, environmental factors, life style choices and of course time itself. A youthful and healthy appearance is the goal of almost everyone. To achieve this goal requires an effort. Cosmetic products can both reverse and prevent some of the age associated changes in appearance. These "corrections" require intervention in molecular and cellular processes which have been changed over time. A greater understanding of how the skin functions has given the cosmetic scientist a greater arsenal of tools whereby to correct some of the changes that result in aged skin. Over time, and with UV damage and other external traumas, skin biology becomes reprogrammed. Changes from oxidative damage and DNA replication errors result in an altered cell metabolism. To effectively erase these errors, corrections must be implemented at the genomic level, the proteomic level, and the metabolomic level.

AcquaSeal® Algae has been designed to address damaged skin and prevent further damage through several specific actions. It is an activator of nuclear transcription factors (RXR and PPAR) resulting in a stimulation of epidermal and dermal cell proliferation. A hallmark sign of aging skin is the reduction cellular reproduction. Slower proliferation results in a slower repair capacity, diminished tissue function, an accumulation of cellular errors and an overall deterioration of skin appearance.

Skin inflammation has been shown to be a major causative agent of skin aging. Daily inflammation from, UV, and pollutants, and "invisible irritation" as a by-product of metabolism causes what has been termed by some, as "Inflammaging." As data will show, skin irritation is reduced dramatically whether induced from a variety of skin assaults. While we have focused on measuring the end results of reducing inflammation, the lipids in AcquaSeal® Algae work by reducing NF-κB activation, as well as TNF-α (a pro-inflammatory cytokine).

THE TECHNICAL DETAILS.

INCI. Chlamydomonas Reinhardtii Extract

CAS. N/A

EINECS. N/A

EUROPE. Compliant

USA. Compliant

CHINA. Compliant

Origin. Botanical

Natural Antimicrobial. None

Preservatives. None

Solvents Used. None

Appearance. Semi-Solid Wax

THE FORMULATION TIPS.

pH Stability. 4 - 7

Temperature Stability. Stable up to 80°C

Use Level. 1 - 10%

Ionic State. Non-ionic

Alcohol Compatibility. Not compatible with alcohol

Solubility. Oil Soluble

Pro Tips. It is recommended that this product is incorporated into both anhydrous products and the oil phase of emulsions (should be added between 60-80°C with mixing).

AcquaSeal® Algae

THE BENEFITS OVERVIEW.

Hydration Boosting Cellular Hydration Assay



Moisturization 24-Hour Moisturization Study



Gentle Exfoliation Cellular Renewal Study



Fibroblast Proliferation Cellular Proliferation Assay



Soothing Reduction of Skin Irritation



Environmental Protection Pollution Protection Assay



Immediate and Long Term Use Benefits Immediate and Long-Term Effects



Epidermal Gene Expression Skin Genomics Assay



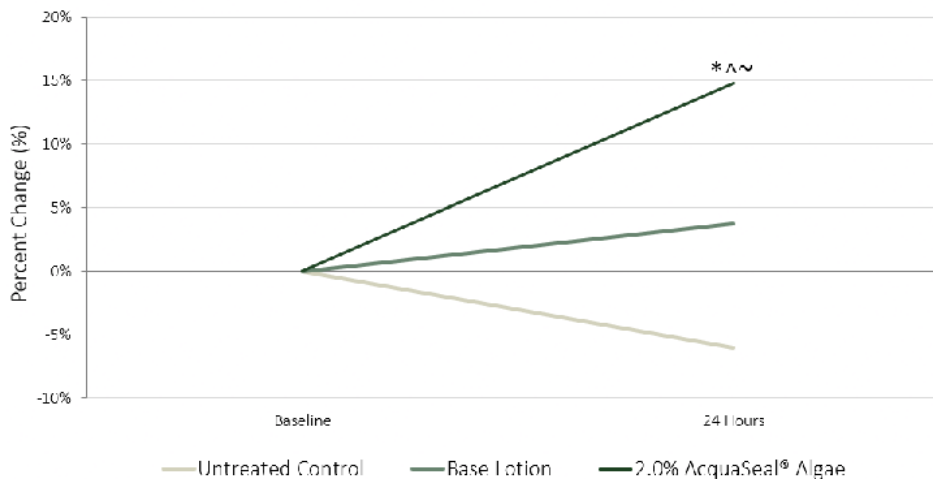
THE EFFICACY.



Moisturization

20 volunteers between the ages of 23 and 45, and who were known to be free of any skin pathologies with Fitzpatrick skin types I to III, participated in this study. 3 randomly assigned test sites were identified on the volar forearm of participants and baseline moisture measurements were recorded. Following baseline measurements, participants applied 0.2 g of each treatment to their volar forearm once during the 24-hour test period. Moisture measurements were recorded at 4 time increments after the application of test materials. Results indicate AcquaSeal® Algae increases skin moisturization immediately when added to personal care applications at recommended use levels.

Change in Hydration



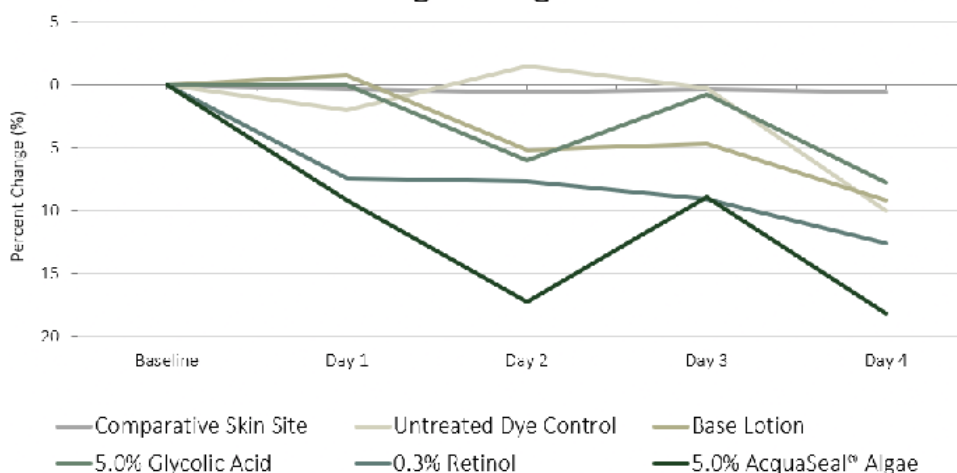
Increases skin moisture by +15%



Gentle Exfoliation

10 volunteers between the ages of 20 and 45, and who were known to be free of any skin pathologies with Fitzpatrick skin types I to IV, participated in this study. 6 test sites were identified on the volar forearm of participants. The first test site was identified as the Comparative Skin Site, and no dye or treatment was applied to this site to demonstrate normal pigmentation readings. Dermal Dye Max™ was applied to the remaining 5 test sites and allowed to develop for 24 hours prior to baseline readings. After dye development, and prior to initial treatment application, baseline DermaLab pigmentation index readings were taken for all 6 identified sites. Results indicate AcquaSeal® Algae enhances cellular renewal when added to personal care applications at recommended use levels.

Change in Pigmentation



Reduces skin pigmentation by -18%

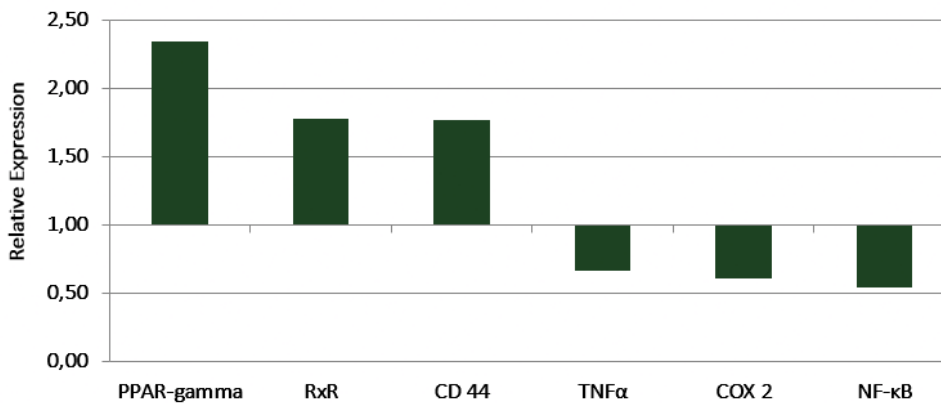
AcquaSeal® Algae

THE EFFICACY CONTINUED.

Epidermal Gene Expression

Gene expression was evaluated in cultured keratinocytes by assessing the expression of twenty genes important in a variety of skin functions. Both RxR and PPAR gamma are nuclear regulatory factors and work together in modulating a number of key genes involved in proliferation and inflammation. AcquaSeal® Algae increased expression of both PPAR gamma and RxR. Three genes important in the skin inflammatory process were down-regulated; these include NF- κ B, TNF α and COX 2 (cyclooxygenase). CD 44 involved in cell adhesion and usually down regulated during differentiation was up-regulated suggesting a shift from differentiation to proliferation.

Epidermal Gene Expression



Increases epidermal proliferation: PPAR gamma and RxR

Environmental Protection

Environmental pollution is now recognized as a major contributor to premature skin aging. Airborne carbon particles and other pollutants can trigger oxidative stress, inflammation, and the breakdown of collagen and elastin while promoting uneven skin tone and the appearance of age spots. Strengthening the skin's protective barrier helps shield against pollutant adhesion, minimizing their impact and supporting healthier, more youthful-looking skin. To evaluate its protective performance, a Carbon Pollution Protection Study was conducted to assess the ability of AcquaSeal® Algae to provide an immediate barrier against carbon pollution while enhancing the removal of adhered particles from the skin.



Up to -87% less carbon pollution on skin

References:

- Masi, A.; Leonelli, F.; Scognamiglio, V.; Gasperuzzo, G.; Antonacci, A.; Terzidis, M.A. Chlamydomonas reinhardtii: A Factory of Nutraceutical and Food Supplements for Human Health. *Molecules* 2023, 28, 1185. <https://doi.org/10.3390/molecules28031185>
- Wang ZT, Ullrich N, Joo S, et al. Algal lipid bodies: stress induction, purification, and biochemical characterization in wild-type and starchless Chlamydomonas reinhardtii. *Eukaryot Cell*. 2009;8(12):1856-1868.
- Soto Sierra L, Dixon CK, Wilken LR. Enzymatic cell disruption of the microalgae Chlamydomonas reinhardtii for lipid and protein extraction. *Algal Res*. 2017;25:149-159.

Active Concepts LLC
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

Active Concepts SRL
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

Active Concepts LLC, Asia
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw

Website
www.activeconceptsllc.com

Social Media
[@activeconceptsglobal](https://www.instagram.com/activeconceptsglobal)