



# NEOSSANCE™ SQUALANE

THE SQUALANE SUCCESSFUL BRANDS COUNT ON



# THE COMPLETE SOLUTION



Consumers know more about their products than ever before and reward brands that use natural, sustainable, and high-performance ingredients meeting the highest of safety standards. Neossance™ Squalane is the top emollient to help formulators succeed in this new era of Clean Beauty for nearly every category: skincare, haircare, color cosmetics, CBD products, hand health and more. Neossance Squalane has proven results including:

- **Skin therapy:** reduces the appearance of wrinkles & fine lines, and achieves brightening, moisturization and barrier repair
- **Microbiome-friendly:** promotes microbiome diversity and maintains stability
- **Hand Sanitizers and Hand Health:** moisturizes skin and supports barrier repair
- **Silicone-free:** improves the performance of silicone-free hair conditioners
- **CBD:** delivers 10 to 40 times more CBD faster to the skin than other emollients

Aprinnova uses Amyris' patented technology that converts renewable sugarcane into pure, consistent, and always-available squalane. Neossance Squalane is more pure than other plant-based sources, and improves product launches because it delivers the performance consumers love without harming the planet at the best price.

## The Next Generation in Unlimited Supply

PROPERTIES	FIRST GENERATION	SECOND GENERATION	THIRD GENERATION
	SHARK Squalane	OLIVE Squalane	Neossance Squalane (sugar)
Purity	99%	87% to 92%	92% to 94%
C30 Purity	99%	87% to 92%	99%
Initial Odor Intensity	80% in spec	45% in-spec	100% in-spec
Saturation	47 mg-Br <sub>2</sub> /100g	> 500mg-Br <sub>2</sub> /100g	5-50mg-Br <sub>2</sub> /100g
Volatile Impurities	244.2 pA*s	1104 pA*s	51.4 pA*s
Stability	Stable	Stable	Stable
Density	0.8084g / mL	0.8177g / mL	0.8085g / mL
Viscosity	35.9 cP	41.7 cP	35.5 cP
Refractive Index	1.4520	1.4558	1.4521

For decades Squalane was primarily sourced from shark liver oil which is now banned in the EU. Other sources include olive Squalane which is derived from olive oil production. Only Neossance sugarcane-derived Squalane is sustainable, highly pure, and consistently available at a stable price.

## BENEFITS AND FEATURES

- Secure supply
- Stable price
- High purity
- Natural
- Sustainable
- Vegan and cruelty-free

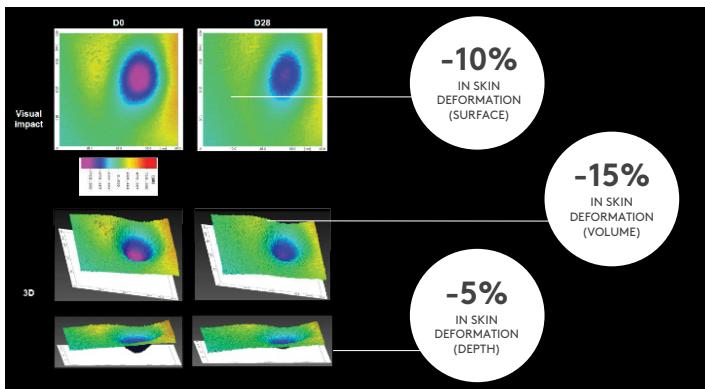


# IMPROVES EVERY SKINCARE APPLICATION

- Reduces appearance of wrinkles and fine lines
- Increases skin firmness
- Brightens skin
- Improves skin smoothness
- Quickly moisturizes



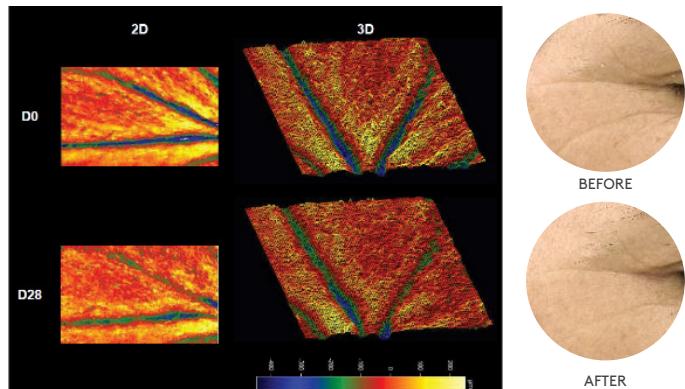
## INCREASES SKIN FIRMNESS



**RESULTS** Firming characterized by decrease in the surface, volume & depth of skin deformation

**PROTOCOL** Clinical study performed on a panel of 40 women (ages 37-60). Squalane + Vitamin C Rose Oil used twice a day, for 28 days.

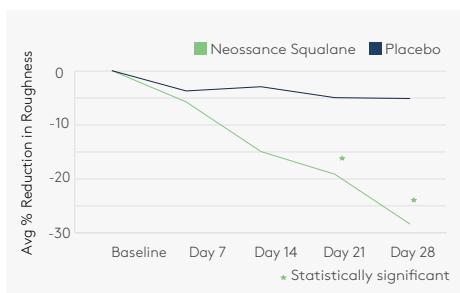
## REDUCES APPEARANCE OF FINE LINES



**RESULTS** Smoothing effect and reduction in appearance of fine lines and wrinkles on crow's feet (characterized by decrease in the average roughness, relief, and amplitude)

**PROTOCOL** Clinical study performed on a panel of 40 women (ages 37-60). Squalane + Vitamin C Rose Oil used twice a day, for 28 days.

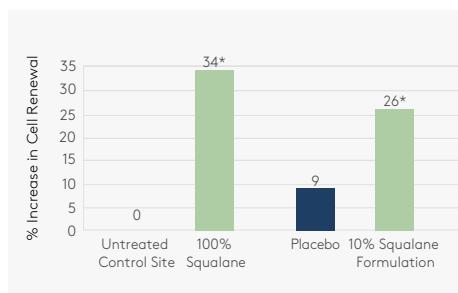
## IMPROVES SKIN SMOOTHNESS



**28%** reduction in roughness after 4 weeks

**PROTOCOL** Clinical study performed on a panel of 30 women (age range 40-60). Application of tested product twice daily on face for 28 days.

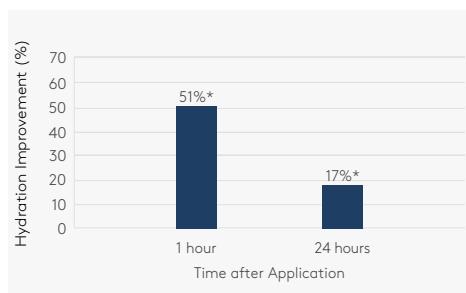
## IMPROVES CELL TURNOVER



**34%** increase in cell renewal compared to an untreated control site and 17% compared to a placebo formulation.

**PROTOCOL** Panel of 10 volunteers (Age 25-56) applied Squalane vs placebo twice daily to the upper arm. Cell turnover monitored every day

## MOISTURIZES SKIN



**51%** improvement in moisturization. Provides immediate and 24-hour moisturization.

**PROTOCOL** Clinical score on 12 men and women (Age 25-61). Application of 10% Neossance Squalane in a cream formula applied once after baseline measurements were obtained

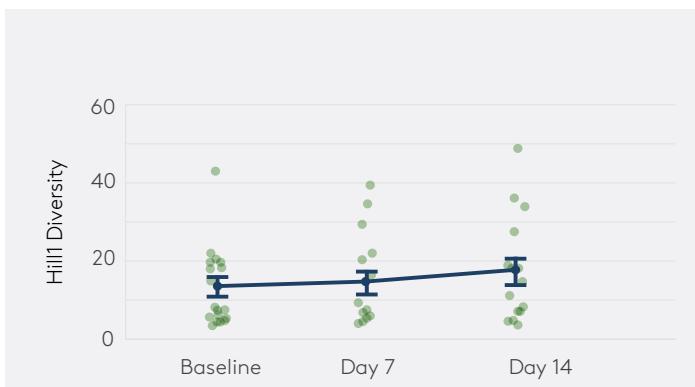
\* Indicates statistical significance at 95% confidence interval, comparing to baseline

# PROMOTES MICROBIOME-FRIENDLY SKIN CARE

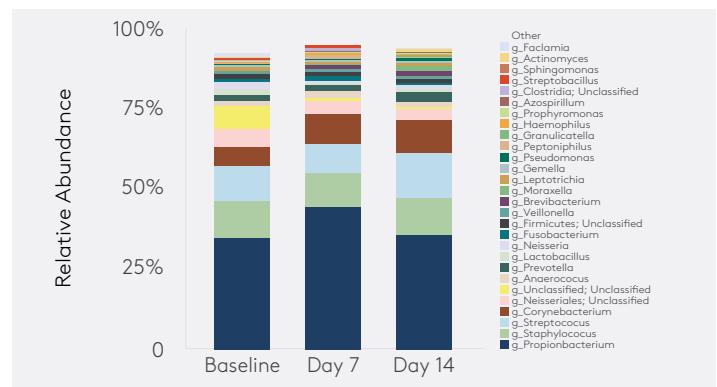
- Supports a healthy skin microbiome
- Increases microbiome diversity
- Does not disrupt microbiome stability
- Leads to healthier, nourished, and younger looking skin



## INCREASES MICROBIOME DIVERSITY



## MAINTAINS MICROBIOME STABILITY



**17.9%** increase in Hill Diversity number. Increased microbiome diversity over time during product usage.

**PROTOCOL** Clinical study with 17 panelists used 100% Squalane as a face oil 2x daily for 14 days. Microbes sampled from cheeks and T-zone at baseline, day 7 and 14. Samples sequenced using 16S rRNA gene-based amplicon to characterize skin bacterial communities.

## Give Consumers Balanced and Healthy Skin

Consumers are looking for science-backed, microbiome-friendly products more than ever. Using Neossance Squalane in personal care applications can support healthy and younger-looking skin health to meet this demand. Studies demonstrate the application of Neossance Squalane meets four standard microbiome-friendly criteria: 1) it is free from contamination 2) it increases bacterial diversity without harming growth 3) it maintains a healthy microbiome balance, or variety of bacterial composition, and 4) it does not disturb skin balance. There is also indication that application of Neossance Squalane resulted in greater increase of diversity in people with dry skin.

## INCREASES DIVERSITY

# 17.9%

Increase in bacterial diversity at 14 days, which is a characteristic of younger and healthier skin.

**LEARN MORE:** Contact Aprinnova for more information on our microbiome studies and how to educate consumers about the benefits Neossance Squalane in new product launches

# ENHANCES HAND SANITIZERS AND HAND CARE LAUNCHES



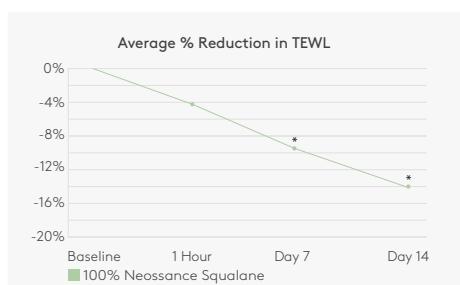
## Top Moisturizer for Hand Sanitizers

Hand sanitizers are now a staple in the lives of consumers. Neossance Squalane is the top emollient for new sanitizer launches because it provides benefits like moisturization, skin barrier repair, is microbiome friendly, and helps differentiate any new launches in a growing market segment. In addition, it is natural, sustainable, and addresses issues of hand health which are top concerns of consumers looking for an effective, safe, and sustainable hand sanitizer products.

## Hand Health

Washing and sanitizing hands depletes the Stratum Corneum, the natural skin barrier, made up of chains of corneocytes and proteins. When the stratum corneum is damaged, water is lost through Transepidermal Water Loss (TEWL). Squalane is proven to reduce TEWL immediately and over time and can be used in creams, lotions, and balms to support consumer hand health.

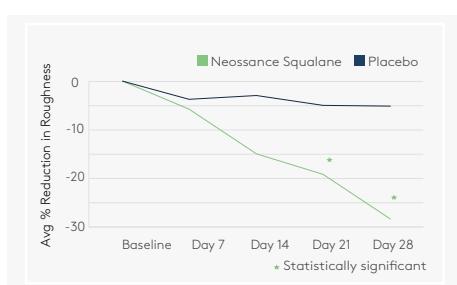
### REPAIRS THE SKIN BARRIER



**13.9%** TEWL reduction in 2 weeks

**PROTOCOL** Clinical score on 20 men and women (Age 18+). Application of 100% Neossance Squalane twice daily on the face for 14 days

### REDUCES TEWL



**14%** TEWL reduction at 21 days

**PROTOCOL** Clinical score on 30 women (Age range: 40-60 yrs). Application of Face Cream with 5% Neossance Squalane twice daily on the face for 28 days

### BENEFITS & FEATURES FOR USE IN HAND SANITIZERS

- Promotes hand health
- Unique look and feel
- Easy to formulate
- Vegan and cruelty-free
- Does not negatively impact active ingredient effectiveness
- Aligns with expectations of "Clean Beauty"

# IMPROVES HAIRCARE APPLICATIONS

- Improves wet and dry combability
- Improves manageability and body
- Improves shine in hair care
- Boosts hair volume
- Reduces frizz and softens hair better than argan oil



IMPROVES MANAGEABILITY

**255%**

Improvement in manageability compared to control formulation

IMPROVES DRY COMBABILITY

**55%**

Improvement in dry combing compared to control formulation

IMPROVES WET COMBABILITY

**25%**

Improvement in manageability compared to control formulation

REDUCES FRIZZ & FLYAWAYS

**15%**

Improvement in frizz reduction and fly away compared to control formulation

INCREASES SHINE

**8%**

Improvement in shine compared to control formulation

**PROTOCOL:** Expert panel and instrumental analysis were conducted on a simple conditioner based on quaternary ammonium compounds and long chain alcohols assess improvement in the performance of Squalane in a silicone-free conditioner chassis.

**RESULTS** Neossance Squalane at levels of 1.2% to 2.0% imparts significant performance improvement in silicone-free rinse off hair conditioners.

# DELIVERS MORE CBD FASTER TO THE SKIN

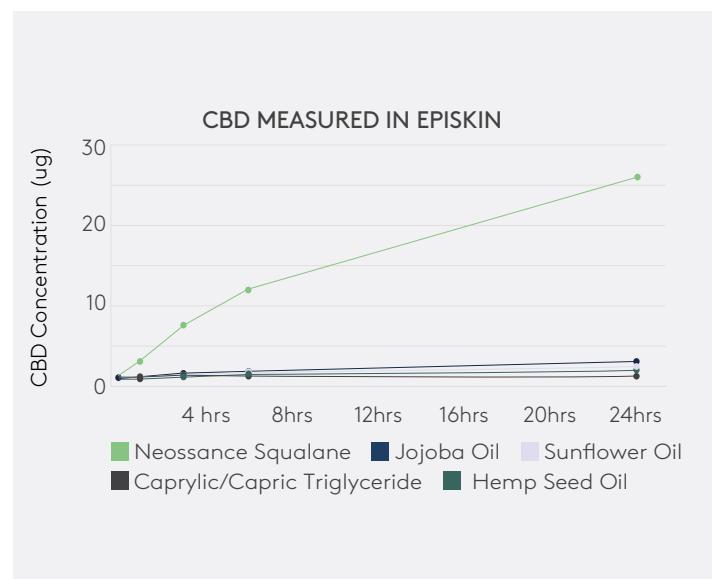
- Deliver more CBD faster and better to receptors in skin
- Provides multiple skin therapy benefits
- Easy formulation
- Natural and sustainable



## DELIVERS MORE CBD



## DELIVERS CBD FASTER



**13-40X** improved CBD penetration across all time points

**PROTOCOL** Graph represents concentration of CBD measured in the EpiSkin model at various time points comparing delivery in Neossance Squalane, Jojoba Oil, Sunflower Oil, CCT, and Hemp Seed Oil.

## Squalane is Essential for New CBD Product Launches

New CBD products need an efficient way of delivering cannabidiol to where receptors are in the skin. In in vitro studies, Neossance Squalane is the most effective emollient for delivering CBD to these receptors compared to other traditional emollients. Squalane also aligns with what consumers want most: moisturization, anti-aging, brightening, natural, ethical, and sustainable claims backed by data. According to ACS Chemical Neuroscience, the functional effects of cannabinoids on skin include regulation of epidermal homeostasis, pain and itch sensation, skin inflammation, and skin appendages like hair and nails. Cannabinoids are able to achieve these functional effects because they interact with certain receptors in our dermis and epidermis. Any new CBD product needs an efficient way of delivering CBD to where these receptors are. Squalane is highly effective at delivering CBD to where these receptors are present in the skin, making it an essential ingredient for any new CBD product launch.

# OUR CLEAN COMMITMENT



## Safety, Transparency, High Performance and Sustainability

Neossance Squalane is made via fermentation of sustainable, renewable sugarcane. Sugarcane is grown sustainably in Brazil without irrigation, waste streams are converted to electricity, and our process generates significantly less greenhouse gas compared to similar products produced from petroleum sources.

### About Neossance

Neossance ingredients are manufactured by Aprinnova, the leading manufacturer of sugarcane-derived ingredients, Squalane and Hemisqualane, now paving the way for clean and non-toxic cosmetics around the globe. As a joint venture between Amyris Inc. and Nikkol Group, Aprinnova leverages cutting edge biotechnology manufacturing capability and 70 years of cosmetic industry expertise to deliver a new standard that makes sustainability a competitive advantage.

### Feel the Difference Today!

Visit [www.aprinnova.com](http://www.aprinnova.com) for our complete formulation guides, resources, and market analysis

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Made from renewable and quickly generated sugarcane



Recover energy from sugarcane for electrical cogeneration



Sugarcane production respects biodiversity



Sugarcane requires little to no irrigation and is efficient for regrowth



Crops located 2000+ km away from rainforest



Low GHG footprint with renewable feedstock



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