ANTI-AGING CLINICAL STUDY

VERSAGEL® & VERSASTIQUE™

The Penreco® gelled hydrocarbon technology is used in a multitude of cosmetic and personal care products around the world. Our innovative patented system for thickening and gelling hydrocarbon materials offers an infinite number of customized rheological properties.

For more than 100 years, Penreco has specialized in niche product blending to meet customer specific requirements, so we know the importance of producing sustainable, eco-friendly, safe and performance-driven products. Versagel is a versatile, multi-functional product with a wide range of uses and benefits. Versastique is a semi-solid gel that enables unique transformational textures and effects.

Versagel and Versastique SQ products are a great additive or substitute in both oil-based formulas and emulsions. The SQ product lines are a gelled form of squalane. Squalane is naturally present in the skin lipid barrier and is an ingredient known for its exceptional skin membrane fluidizing and moisturizing properties, and its ability to penetrate the skin to deliver benefits. Squalane is a non-GMO, plant-derived ingredient and Versagel SQ is a high-quality replacement for shark and olive squalene. It is derived from plant sugar, is ECOCERT approved, and is readily biodegradable as well.

In skin care, gelled squalane helps to facilitate an even distribution of active ingredients and it softens the skin to help it be easily absorbed.
ANTI-AGING CLINICAL STUDY

ANTI-AGING CLINICAL DESIGN

OBJECTIVE
Evaluate the anti-aging effect of Versagel Squalane & Versastique Squalane compared to Squalane and Placebo

GENERAL
Independent, 4 weeks, randomized, double blinded
Twelve subjects per treatment cell
Efficacy evaluation timepoints: baseline, immediate, 2 weeks, and 4 weeks

STUDY POPULATION
Healthy females aged 35–65 with Fitzpatrick Skin Type I-IV
Having mild to moderate (3–6) score on the Griffiths scale for the following facial conditions:
- Photoaging
- Fine lines
- Wrinkles
- Lack of radiance/luminosity/brightness
- Uneven skin tone

ANTI-AGING CLINICAL TEST FORMULATIONS
Vehicle (Lotion Base Formula)
Vehicle + SQ (Lotion Base Formula + Squalane*)
Vehicle + VG-SQ (Lotion Base Formula + Versagel® SQ 1600T*)
Vehicle + VS-SQ (Lotion Base Formula + Versastique™ SQ Clear*)
*Formulated to contain 5% Squalane

SUMMARY OF VERSAGEL & VERSASTIQUE ANTI-AGING SUPERIORITY
VG-SQ & VS-SQ outperformed SQ on 6 major anti-aging efficacy parameters
VG-SQ 28% better than SQ
VS-SQ 28% better than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

PARAMETERS
- Periocular Wrinkles
- Skin Tone Evenness
- Skin Smoothness & Texture
- Skin Elasticity Skin Radiance
- Overall Appearance

CONCLUSION
- Squalane is an efficacious anti-aging ingredient.
- Versagel & Versastique delivery system significantly improves anti-aging efficacy of squalane on 6 major anti-aging parameters.
- Efficacy benefits of Versagel-SQ and Versastique-SQ are perceivable (visual, tactile and image analysis).
- Subjects favorably reported the positive benefits of products containing squalane — especially Versastique-SQ.
- Versagel-SQ and Versastique-SQ can be used to create high-performing anti-aging products.

SELF-ASSESSMENT QUESTIONNAIRE
Analyzed answers to questions about subjects’ perceived results

Versagel & Versastique receive highly-favorable self-assessment ratings by the subjects of the anti-aging clinical study. Favorable responses were “agree” and “strongly agree” to a list of 20 questions regarding the properties and skin care benefits of the 4 test products used in the clinical study. Subjects favorably reported the positive benefits of products containing squalane — especially Versastique-SQ. These results support the strong anti-aging efficacy of these ingredients.

Study #C19-D069
ANTI-AGING EFFICACY – CLINICAL GRADING

IMPROVEMENT OF OVERALL APPEARANCE
Lotion containing Versagel-SQ and Versastique-SQ superior to Squalane- and Placebo-containing lotions

Result
VG-SQ is 119% more effective than SQ
VS-SQ is 119% more effective than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

ANTI-AGING EFFICACY – VISUAL

ANTI-AGING IMPROVEMENT FROM VERSAGEL SQUALANE (VISIA)
After 4 weeks, her face shows noticeable anti-aging benefits.
- Better coloration around her eyes
- Firmer skin around her eyes
- Less redness in her cheeks
- Lighter/brighter and more even overall complexion

Product contained Versagel-SQ 1600T

ANTI-AGING EFFICACY – IMAGE ANALYSIS

REDUCTION OF PERIOcular WNKLES
This subject received the lotion containing Versastique-SQ Clear.
After 4 weeks, her face shows reduction in total area of periocular wrinkles.
After 4 weeks, her face shows noticeable anti-aging benefits.
- Reduction in wrinkles
- Lighter/brighter and more even overall complexion

Result
VG-SQ is 127% more effective than SQ
VS-SQ is 100% more effective than SQ
Change from baseline to 4 weeks for selected panelists

ANTI-AGING EFFICACY – CLINICAL GRADING

IMPROVEMENT OF SKIN RADIANCE
Lotion containing SQ, VG-SQ, and VS-SQ were all significantly better after
4 weeks, VG-SQ parity to SQ, VS-SQ directionally better than SQ

Result
VG-SQ is comparable to SQ
VS-SQ is 11% more effective than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

Study #C19-D069
ANTI-AGING EFFICACY – CLINICAL GRADING

REDUCTION OF PERIOCULAR WRINKLES
Lotion containing Versagel-SQ and Versastique-SQ was superior to Squalane and placebo lotions.

Result
- VG-SQ is 60% more effective than SQ
- VS-SQ is 19% more effective than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

IMPROVEMENT OF SKIN ELASTICITY
Lotion containing Versagel-SQ superior to SQ and lotion containing Versastique-SQ was equally effective to SQ.

Result
- VG-SQ is 24% more effective than SQ
- VS-SQ is equally effective as SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

Measurement
Clinical assessment of pinch recoil of left crow’s feet area (LCFA) by skilled clinician
- Pinch skin with thumb and forefinger
- Hold in place 2 seconds
- Measure time for skin to recover
- Lower time is better

IMPROVEMENT OF SMOOTHNESS & TEXTURE
Lotion containing SQ, VG-SQ and VS-SQ significantly improved smoothness and texture when compared to the vehicle after 4 weeks.

Result
- VG-SQ is 11% more effective than SQ
- VS-SQ is 23% more effective than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)

Study #C19-D069

IMPROVEMENT OF SKIN TONE EVENNESS
Lotion containing SQ, VG-SQ and VS-SQ were all significantly better than the vehicle after 4 weeks.

Result
- VG-SQ is 11% more effective than SQ
- VS-SQ is 33% more effective than SQ
Significant improvement from baseline via Wilcoxon signed ranked test (p ≤ 0.05)