



A BETTER WAY TO FORMULATE

VERSASTIQUE™

CLEAR STIQUE TECHNOLOGY

The Versastique™ product line is a multi-functional material that provides a better way to formulate through simplified creation of functional and aesthetic solid stick applications. With translucent and clear stick properties, Versastique is ideal for natural, mineral and synthetic ingredients in cosmetics, personal care, skin care, sun care and health care products.

Versastique offers formulators excellent performance and stability benefits:

- Formulation Friendly – efficient delivery system, easy to use (simply melt and mix).
- Cost Effective – reduces amount of structural material required to make a stick application.
- Versatility – compatible with a wide variety of low polarity ingredients.
- Performance – excellent suspension properties and superior moisture delivery.
- Stability – stabilizes and protects active ingredients in a self-preserving formulation base.
- No harsh chemicals – milder to the skin and low toxicity.

For more than 100 years, Penreco® has specialized in niche product blending to meet customer specific requirements. If you are interested in finding out more about the many attributes of our gelled and solid stick technology, we can provide supporting clinical and in-vitro studies. Please contact your Penreco sales representative and our technical experts will be happy to find a solution that's right for you.

Let us show you a better way to formulate.

penreco®

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To request a sample, visit penreco.com.

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APPLICATIONS

- Color Cosmetics: concealer, foundation, blush/highlighter, face and body paint, lipstick, lip liner, eye liner, multi-stick
- Personal Care: deodorant, cleanser, mask/peels
- Skin Care: oils, insect repellent, cuticle oil, complexion correction, after shave
- Sun Care: sunblock/sunscreen, after-sun cooling
- Health Care: scar treatment, topicals, ointments, wound-healing products, pain relief, acne treatment
- Hair Care: pomades, styling products, treatments

The Versastique product line includes gelling four substrates:

- SQ Squalane ■ ML C12-15 Alkyl Benzoate ■ ME Hydrogenated Polyisobutene ■ M Mineral Oil

VERSASTIQUE SQ

Anti-Aging

Solid stick form of squalane derived from plant sugar is a sustainable replacement for shark and olive squalene. It closely mimics the body's natural moisturizers and is absorbed quickly and effectively, without leaving greasy residue on the skin.

VERSASTIQUE ML

Soothing

Solid stick form of C12-15 alkyl benzoate provides a light and dry skin feel. It's known as an emulsifier and stabilizer for antiperspirant actives.

VERSASTIQUE ME

Light-Moisturizing

Solid stick form of hydrogenated polyisobutene is very light, non-greasy, and has good spreading properties. It has a wide range of chemical compatibility, and solubility for sunscreen agents and is a great mineral oil-free alternative.

VERSASTIQUE M

Moisturizing

Solid stick form of mineral oil provides increased moisturization and convenience over regular mineral oil.

KEY TYPICAL PROPERTIES	VERSASTIQUE				VERSASTIQUE CLEAR				VERSASTIQUE LOW MELT			
	SQ 40 T	ML 40 T	ME 40 T	M 40 T	SQ 5 T	ML 5 T	ME 5 T	M 5 T	SQ 5 T	ML 5 T	ME 5 T	M 5 T
Viscosity @ 130 °C (cPs) D2983	38.1*	50.4*	44.8*	36.6*	4.6	4.2	5.1	4.4	4.6	4.1	5.2	4.3
Specific Gravity @ 25/25 °C D4052	0.81	0.93	0.83	0.85	0.81	0.93	0.83	0.85	0.81	0.93	0.83	0.85
Flash Point ASTM D92 (°C)	220	195	145	188	220	195	145	188	220	195	145	188
Melting Point (°C) D3954	119	108	118	125	110	93	103	107	85	81	85	88
Appearance	Opaque Semi-solid	Opaque Semi-solid	Opaque Semi-solid	Opaque Semi-solid	Clear solid	Clear solid	Clear solid	Clear solid	Clear solid	Clear solid	Clear solid	Clear solid
Gardner Color	3.2	0.4	3.0	2.2	0.3	0.3	0.3	0.3	0.6	0.3	0.6	0.3
Hardness (g) typical	12	8	15	19	22	22	22	22	20	20	20	20

Viscosity @ 130 °C (cPs), SC4-18, 90 rpm, (10 rpm*)

International Nomenclature of Cosmetic Ingredients (INCI)

The **Versastique 40 T** product line includes the gelled (substrate) and Butyl Stearate, Isostearyl Alcohol, Hydrogenated Styrene/Butadiene Copolymer, Hydrogenated Styrene/Isoprene Copolymer, Dibutyl Lauroyl Glutamide, Pentaerythrityl Tetra-di-t-butyl Hydroxyhydrocinnamate

The **Versastique Clear 5 T** product line includes the gelled (substrate) and Butyl Stearate, Isostearyl Alcohol, Hydrogenated Styrene/Butadiene Copolymer, Dibutyl Lauroyl Glutamide, Dibutyl Ethylhexanoyl Glutamide, Pentaerythrityl Tetra-Di-t-Butyl Hydroxyhydrocinnamate

The **Versastique Low Melt** product line includes the gelled (substrate) and Butyl Stearate, Isostearyl Alcohol, Hydrogenated Styrene/Butadiene Copolymer, Dibutyl Ethylhexanoyl Glutamide, Dibutyl Lauroyl Glutamide, Pentaerythrityl Tetra-di-t-butyl Hydroxyhydrocinnamate

Please note that only the viscosity and appearance are listed on the CoA.
The remaining data are typical results that are not regularly reported on the CoA.

VERSASTIQUE™

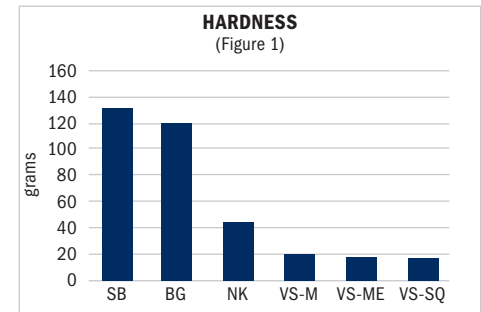
CLEAR STIQUE TECHNOLOGY

WHY FORMULATE WITH VERSASTIQUE

Studies on the Versastique product line have shown that prototype formulations using Versastique Clear 5T series SQ, ME, and M have similar hardness, friction, transfer rate and efficacy. This enables formula customization by varying the properties of the gelled emollient. To illustrate the benefits of formulating with Versastique sunscreen prototypes were developed and compared to marketed benchmarks (SB, BG and NK) using a Texture Analyzer.

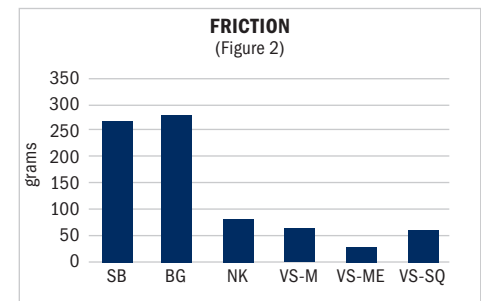
HARDNESS

Versastique prototypes have lower hardness than wax structured benchmarks. Softer stick products are gentler to apply onto the skin. (Figure 1)



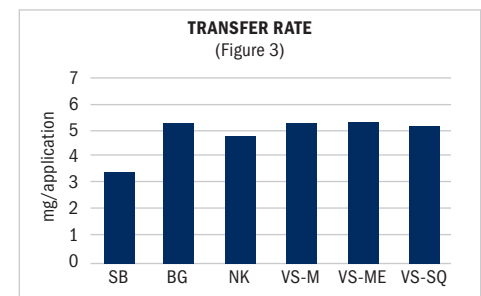
FRICTION

Versastique prototypes have comparable or much lower friction than the benchmarks. Thus, we can conclude that the Versastique prototypes take less force to spread product over the surface. Additionally, the Versastique ME is the most lubricious. (Figure 2)



TRANSFER RATE

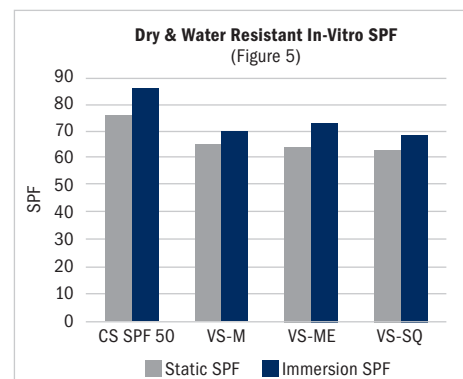
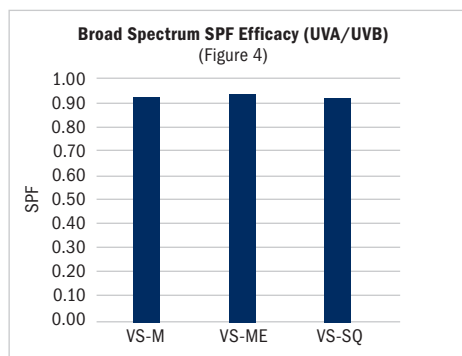
Versastique sunscreen prototypes have similar transfer rates compared to BG & NK while SB is significantly lower. Thus, we can conclude that the amount of product being applied is equivalent to benchmarks. This means that Versastique sunscreens are gentler to apply without applying excess product to the skin. (Figure 3)



EFFICACY

Broad Spectrum In-Vitro SPF Performance

Versastique sunscreen prototypes have comparable performance to the benchmark under static and water immersion testing at almost half the active level. All Versastique sunscreens have higher SPF than expected (50 vs. 30) which implies highly uniform spreading of the sunscreen agents in Versastique base. Versastique sunscreens showed broad-spectrum performance with each having a UVA/UVB ratio greater than 0.90 (Figure 4). The pre-emersion or static SPF of Versastique sunscreens is comparable to static SPF of the benchmark while the post-emersion SPF is within 80% or greater of the benchmark value. The water-resistant properties of Versastique enable higher SPF post-immersion vs. the static or pre-immersion values. The mildness, high efficiency, and water resistance of Versastique makes it an attractive base for high performance sunscreens (Figure 5).



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