



A BETTER WAY TO FORMULATE

VERSAGEL®

VERSAGEL® HAIRCARE STUDY

The Penreco® gelled hydrocarbon technology is used in a wide variety of cosmetic and personal care products around the world. From hair products and color cosmetics to skin and sun care products, our innovative patented system for thickening and gelling hydrocarbon materials offers an infinite number of customized rheological and sensory properties.

Versagel SF and Versagel HSQ (Hemisqualane) offer silicone-free alternatives for hair care formulations with the flexibility to create customized solutions for various hair types and textures.

Hemisqualane is a nonvolatile emollient naturally derived from plant sugar. The Versagel HSQ 200T has a natural origin index of .93 based on the ISO 16128 criteria.

OBJECTIVE

Compare Versagel prototypes VersaShine (SF) and VersaGroom (HSQ) against a market leading Commercial Benchmark.

STUDY DETAILS

Frizz Test

Each swatch was treated with a flat iron and brush. Initial straight hair length measures were taken and then placed in a high T and % RH chamber. Curl reversion was measured at various time intervals.

Shine Test

Determine the amount of shine on hair using Samba instrument.

Expert Panel Swatch Evaluations

Expert panel of eight judges rated the hair swatches on the following attributes. Wet evaluations included ease of detangling, ease of wet combing, hair condition and wet feel. Dry evaluations included soft/smooth feel, clean feel, ease of dry combing, lack of static, body/fullness, manageability, and shine.

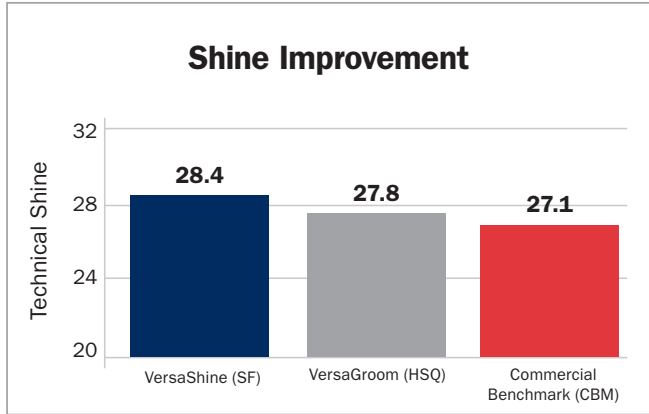
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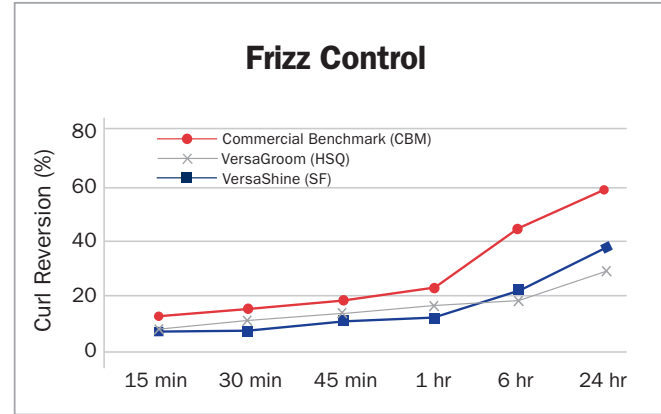
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FINDINGS



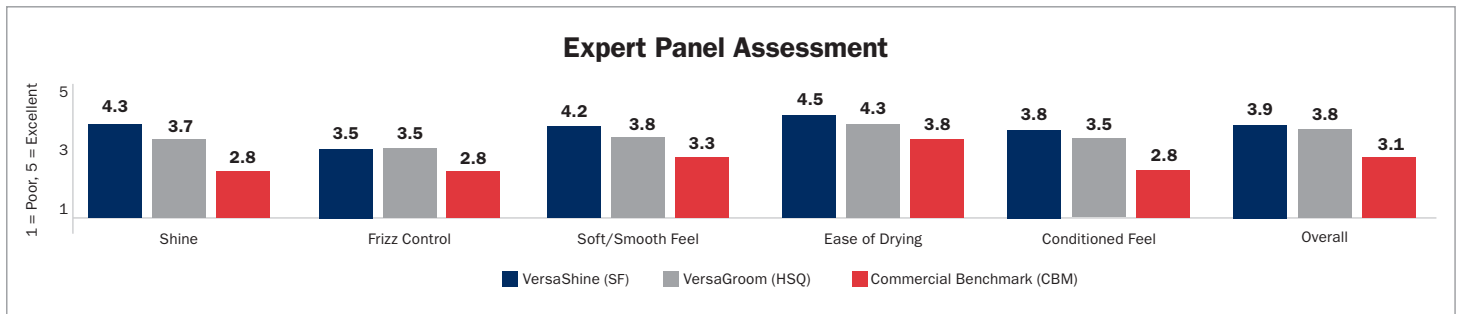
Shine: The results demonstrate that VersaGroom (HSQ) and VersaShine (SF) hair serum formulations give similar amount of shine compared to the Commercial Benchmark (CBM).



Frizz: The prototype serums significantly outperformed Commercial Benchmark (CBM) at 30 min and thereafter. Overall, this shows that Versagel technology increases anti-frizz performance.

Expert Panel:

Expert Panel Assessment shows that VersaGroom (HSQ) and VersaShine (SF) hair serum formulations are equal or superior to the Commercial Benchmark (CBM) across a wide range of consumer relevant benefits. On a scale of 1–5; (1 = poor, 5 = excellent).



CONCLUSION

These studies demonstrate that both Versagel formulations gave superior visual and tactile benefits, including shine and frizz, compared to a leading commercial benchmark which had a high silicone content.

PRODUCT FORMULARIES

VERSAGROOM

This formulation combines Versagel HSQ with natural oils and Cedar Leather scent for a multifunctional 2-in-1 hair and skin treatment. This grooming treatment is designed to soften and tame the beard and hair with a healthy shine while moisturizing the skin and scalp underneath.

PHASE	TRADE/COMMON NAME	INCI NOMENCLATURE	WT %
A	Versagel HSQ	C13-15 Alkane (and) Ethylene/Propylene/Styrene Copolymer (and) Butylene/Ethylene/Styrene Copolymer and Pentaerythrityl Tetra-di-t-butyl Hydroxyhydrocinnamate	54.5
B	Grapeseed Oil	Vitis Vinifera (Grape) Seed Oil	30.0
B	Apricot Oil	Prunus Armeniaca (Apricot) Kernel Oil	10.0
B	Argan Oil	Argania Spinosa Kernel Oil	5.0
B	Cedar Leather	Fragrance	0.5

MIXING INSTRUCTIONS

- Melt Phase A (85 °C)
- Add Phase B
- Mix Phase A/B at 85 °C until homogeneous
- Pour into suitable containers and allow to cool

VERSASHINE

This formulation combines Versagel SF and Versagel MD for a multifunctional hair treatment for moisturization, shine and frizz taming. Apricot, grapeseed and Argan Oils enable a relaxing scalp treatment with the added benefit of Versagel MD which aids in providing fast-dry properties.

PHASE	TRADE/COMMON NAME	INCI NOMENCLATURE	WT %
A	Versagel SF	C13-14 Isoparaffin (and) Ethylene/Propylene/Styrene Copolymer (and) Butylene/Ethylene/Styrene Copolymer (and) Pentaerythrityl Tetra-di-t-butyl Hydroxycinnamate	54.5
A	Versagel MD 500T	Isododecane (and) Ethylene/Propylene/Styrene Copolymer (and) Butylene/Tehylene/Styrene Copolymer (and) Pentaerythrityl Tetra-di-t-butyl Hydroxyhydrocinnamate	5.0
B	Grapeseed Oil	Vitis Vinifera (Grape) Seed Oil	5.0
B	Apricot Oil	Prunus Armeniaca (Apricot) Kernel Oil	10.0
B	Argan Oil	Argania Spinosa Kernel Oil	25.0
B	Fragrance, Citrus Sea Salt AN-91-1033-59	Fragrance	0.5

MIXING INSTRUCTIONS

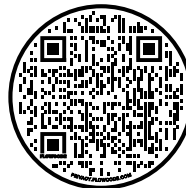
- Melt Phase A (85 °C)
- Add Phase B
- Mix Phase A/B at 85 °C until homogeneous
- Pour into suitable containers and allow to cool

*Products in **bold** are supplied by Calumet Specialty Products Partners, L.P.

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