



HAND CARE

FORMULATING LASTING PARTNERSHIPS

PRODUCTS DESIGNED WITH CARE

The Penreco product lines of Versagel[®], petrolatums and mineral oils are used in numerous dermatologically-supported creams and lotions that help fortify the skin barrier. Each product line is available in multiple viscosity ranges and are suitable for a wide variety of personal care formulations.

For more than 100 years, Penreco has specialized in niche product blending to meet customer-specific requirements. We're proud to offer safe stable products that provide a moisturizing agent as well as a gel structure for ease of formulation.

Download a digital copy
of this brochure.



penreco[®]

138 Petrolia St., Karns City, PA 16041 ■ 800.437.3188 ■ 724.756.0110 ■ penreco@calumet.com
To request a sample, visit penreco.com.

 CALUMET

VERSAGEL® M & ME

MOISTURIZING GELS

The Penreco patented gel technology offers superior moisturization, stabilization and suspension properties. Versagel products are also nontoxic and compatible with most chemical ingredients providing fragrance and moisture retention characteristics.

TYPICAL PROPERTIES

	Versagel M (Mineral Oil)				Versagel ME (Hydrogenated Polyisobutene)			
	Versagel M 200	Versagel M 500	Versagel M 750	Versagel M 1600	Versagel ME 500	Versagel ME 750	Versagel ME 1600	Versagel ME 2000
Viscosity @ 25 °C D2983 (cPs)	13,330 - 27,700	47,000 - 57,000	67,000 - 83,000	132,000 - 198,000	50,000 - 75,000	85,000 - 110,000	140,000 - 180,000	245,000 - 325,000
Specific Gravity @ 25 °C D4052	0.8421	0.8445	0.8434	0.8424	0.8264	0.8265	0.8280	0.8269
Saybolt Color D156	+30	+30	+30	+30	+30	+30	+30	+30
Flashpoint °C ASTM D92	> 175	> 175	> 175	> 175	> 149	> 149	> 149	> 149

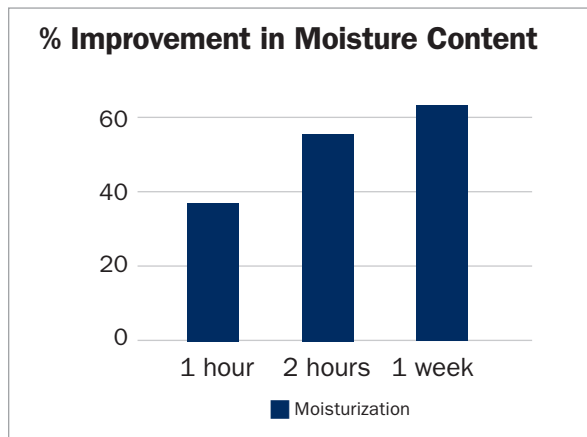
VERSAGEL ME 750 MOISTURIZATION AND LIP CONDITIONING BENEFITS STUDY

In the clinical study, moisture content of the lips was measured with a NOVA Dermal Phase Meter (NOVA DPM) which measures the moisture in the skin by measuring an electrical parameter (impedance). Measurements were taken on the right and left side of the lower lip to quantify the moisture content of the stratum corneum. Overall, there was a 61% improvement in lip moisture content in 1 week.

Additionally, lip condition was graded by skilled clinician comparing all improvements to baseline. The clinical grading of lip condition correlated with the instrumentally measured improvement in skin moisturization at 1h, 2h, and 1 week:

- Lip Lines: Decreased 62%
- Scaling: Decreased 27%
- Cracking: Decreased 22%

The high sensitivity of lip skin is well known and partly due to its much lower number of skin layers compared to regular skin. This makes lips highly susceptible to dryness. The excellent performance of Versagel ME in lip care applications is due to its exceptional mildness, moisturization, and lip conditioning benefits – which also makes it an excellent ingredient for leave-on skincare products such as creams and lotions.



Study #C01-C138

SILKY SMOOTH HAND & BODY CREAM

A rich, protective hand and body cream designed to relieve dryness and leave the skin soft and silky smooth. Versagel M 750 provides long-lasting moisturization, a perceptible conditioning effect, and an elegant after-feel.

	Ingredient	Weight (%)
A	Deionized Water	70.6
	Carbomer	0.2
	Propylene Glycol	7.0
	Methylparaben	0.2
	Panthenol	0.1
B	Versagel M 750	8.0
	Propylene Glycol Dicaprylate/Dicaprate	5.0
	Isostearyl Alcohol	2.0
	Propylparaben	0.1
	Cetyl Alcohol	2.0
	Glyceryl Stearate (and) PEG-100 Stearate	2.5
	Potassium Cetyl Phosphate	1.75
	Tocopheryl Acetate	0.1
C	Triethanolamine, 99%	0.15
D	Diazolidinyl Urea	q.s.
E	Fragrance	0.1
Total		100%

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

Procedure: Disperse Carbomer into rapidly agitated deionized water. Add remaining part A ingredients. Heat to 75-80 °C and mix until uniform and lump-free. Combine part B ingredients. Heat to 80 °C and mix until all the solids are dissolved. Add part B to part A. Mix for 30 minutes with good agitation. Add part C. Mix until completely smooth and homogeneous. Cool to 50 °C. Add part D. Cool to 40 °C. Add part E. Continue mixing and cooling to 30 °C.

This formula is distributed by Calumet Refining, LLC ("Calumet"), only for the purpose of promoting the use of mineral oil, petrolatum, Versastique and/or Versagel as components of secondary cosmetic products that are manufactured by Customers of Calumet and for no other purpose. Full Disclaimer and Limitation of Liability available at <https://penreco.com/formulation-disclaimer>.

PETROLATUMS

CUSTOMIZED FROM START TO FINISH

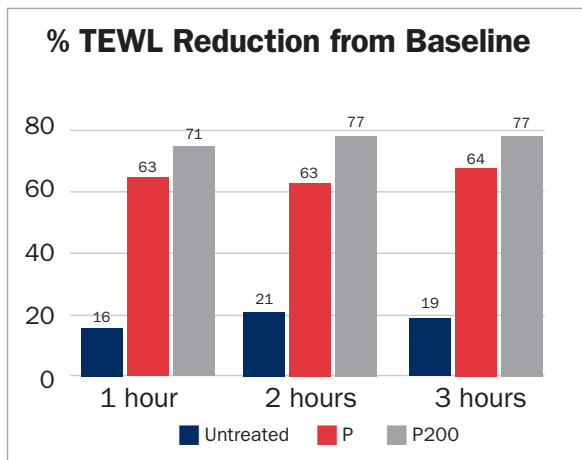
We are devoted to understanding the unique chemistry required to deliver customized petrolatum products to meet the specific needs of today's consumer products. Our manufacturing process delivers high purity, extremely stable and custom natural colors.

TYPICAL PROPERTIES

	Melting Point, °F (°C) USP/ASTM D127	Viscosity SUS @ 210 °F ASTM D2161	Maximum Lovibond Color 2" Cell IP17	Consistency @ 77 °F USP/ASTM D937
WHITE PETROLATUM USP				
Ultima	130/140 (54/60)	60/75	0.5Y	155/180
Super	125/135 (52/57)	60/75	0.5Y	170/205
Snow	125/135 (52/57)	64/75	2.0Y	170/205
Regent	118/130 (48/54)	57/70	2.0Y	210/240
Lily	125/135 (52/57)	64/75	8.0Y 0.5R	170/205
Cream	125/135 (52/57)	64/75	18.0Y 1.5R	175/205
PETROLATUM USP				
Royal	118/130 (48/54)	57/70	35.0Y 3.0R	210/240
Blond	125/135 (52/57)	68/82	35.0Y 2.0R	175/205
Amber	125/135 (52/57)	68/82	35.0Y 7.0R	175/205

PETROLATUM AND VERSAGEL® P200 SKIN BARRIER REPAIR STUDY

A clinical study was conducted using petrolatum and Versagel P on the volar forearms of test subjects with self-perceived dry skin. TEWL measurements (DermaLab) were taken at baseline 1 hour, 2 hours, and 3 hours with re-application after each test. The study showed that petrolatum had over 60% decrease in Transepidermal Water Loss (TEWL) and Versagel P200 (gelled Petrolatum) had even higher TEWL at over 70% and both were much more efficacious than the untreated site. Thus, proving that petrolatum and Versagel P200 are highly effective moisturizing ingredients for use in hand creams and lotions.



Study #C05-C055

HEALTHY HANDS LOTION

This thick, rich lotion spreads easily on the skin. It contains a high level of petrolatum for extra moisturization.

	Ingredient	Weight (%)
A	Snow Petrolatum	70.0
	Glycol Stearate SE	5.0
	Isopropyl Palmitate	3.1
	Cetyl Alcohol	2.0
	Polysorbate 20	1.0
	Tocopheryl Acetate	0.1
	Propylparaben	0.1
B	Deionized Water	17.5
	Methylparaben	0.2
C	Aloe Barbadensis Leaf Juice	0.7
	Diazolidinyl Urea	0.3
	Fragrance	q.s.
Total		100%

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

Procedure: Heat part A to 75-80 °C with stirring until uniform. Heat part B to 75-80 °C with stirring. Add part B to part A with stirring. Allow the mixture to cool with stirring. Below 50 °C, add the part C ingredients sequentially. Continue stirring to 30 °C and package.

This formula is distributed by Calumet Refining, LLC ("Calumet"), only for the purpose of promoting the use of mineral oil, petrolatum, Versastique and/or Versagel as components of secondary cosmetic products that are manufactured by Customers of Calumet and for no other purpose. Full Disclaimer and Limitation of Liability available at <https://penreco.com/formulation-disclaimer>.

WHITE OILS

TRUSTED SECURE SOLUTIONS

Penreco white oils of specific viscosities are refined to meet the purity specifications of the USP/NF and FDA. As a trusted key ingredient for more than 100 years, our manufacturing process delivers not only a high purity and safe product but is also very stable over time.

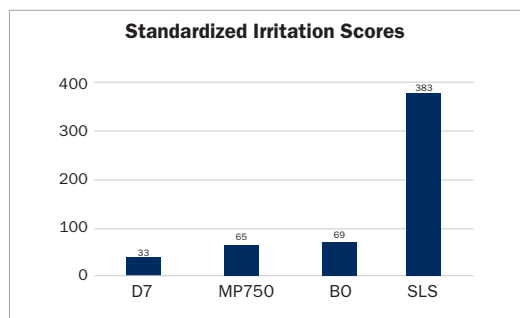
TYPICAL PROPERTIES

	VISCOSITY		SPECIFIC GRAVITY ASTM D4052 @ 77 °F	FLASH POINT ASTM D92 (Typical)		POUR POINT ASTM D97 (Typical)	
	ASTM D2161 SUS @ 100 °F	ASTM D7042 CST @ 40 °C		°F	°C	°F	°C
MINERAL OIL USP							
Drakeol® 600	515/625	99.0/120.0	0.8600/0.8780	507	264	11	-12
Drakeol 350	350/370	66.7/71.2	0.8570/0.8730	469	243	5	-15
Drakeol 35	340/365	65.8/71.0	0.8640/0.8810	467	242	3	-16
Drakeol 34	370/410	72.0/79.5	0.8580/0.8720	478	248	5	-15
Drakeol 32	312/330	60.0/63.3	0.8560/0.8760	459	237	5	-15
Drakeol 21	200/215	38.4/41.5	0.8530/0.8760	439	226	5	-15
Drakeol 19	180/190	34.9/37.3	0.8520/0.8760	434	223	5	-15
LIGHT MINERAL OIL NF							
Drakeol 15	145/155	28.1/30.3	0.8500/0.8730	407	208	5	-15
Drakeol 13	125/135	24.2/26.3	0.8480/0.8670	391	199	5	-15
Drakeol 10	102/115	19.0/21.9	0.8380/0.8640	407	208	3	-16
Drakeol 10B	95/105	17.7/20.2	0.8670/0.8840	333	167	-23	-31
Drakeol 9	80/90	14.2/17.0	0.8330/0.8610	391	199	-15	-26
Drakeol 7	65/75	10.8/13.6	0.8330/0.8610	369	187	-15	-26
Drakeol 6 VR	10.0/10.6*	9.4/10.0	0.8340/0.8380	348	176	-15	-26
Drakeol 5	50.2/60.0	6.9/9.6	0.8180/0.8610	337	169	-20	-29

* Reported in cSt

MINERAL OIL AND VERSAGEL® MP STUDY TO DETERMINE COMPARATIVE MILDNESS OF INGREDIENTS

A clinical study was conducted using 100 micro liters occlusive patches of product applied to backs of subjects for 14 days. Using the Berger & Bowman Grading Score, the skin patches were evaluated and given standardized cumulative irritation scores. The study showed that Drakeol 7 (D7) was more than 50% less irritating than a commercial baby oil (BO) while Versagel MP 750 had a similarly low irritation score to BO. The study also showed the anionic surfactant sodium lauryl sulfate (SLS) which is a known skin irritant as a positive control. The BO and SLS provided benchmarks that further showed how both Drakeol 7 White Mineral Oil and Versagel MP are very mild ingredients in applications such as moisturizers and offer hydration without irritating sensitive skin.



Study #C00-C023

24/7 SKIN LOTION

This rich, smooth lotion leaves the skin feeling soft and moist. The product spreads easily and does not leave a greasy afterfeel.

	Ingredients	Weight (%)
A	Drakeol 7	7.0
	Myreth-3 Myristate	5.0
	Sorbitan Stearate	3.6
	Cetyl PPG-2 Isodeceth-7 Carboxylate	3.0
	Steareth-100	2.4
	Dimethicone	0.5
B	Deionized Water	72.5
	Glycerin	2.5
	Carbomer	0.5
C	Sodium Hydroxide (10% aq. Solution)	2.0
D	Propylene Glycol (and) Diazolidinyl Urea (and) Methylparaben (and) Propylparaben	1.0
	Fragrance	q.s.
Total		100%

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

Procedure: Disperse the Carbomer into rapidly agitated deionized water. Add the glycerin, and heat to 70-75 °C with vigorous stirring. Heat part A to 75-80 °C with stirring. Add part A to part B with stirring and allow to cool. After 5 minutes, add part C. At 40 °C, add part D. Continue stirring to 30 °C.

This formula is distributed by Calumet Refining, LLC ("Calumet"), only for the purpose of promoting the use of mineral oil, petrolatum, Versastique and/or Versagel as components of secondary cosmetic products that are manufactured by Customers of Calumet and for no other purpose. Full Disclaimer and Limitation of Liability available at <https://penreco.com/formulation-disclaimer>.



All trademarks are owned by Calumet Refining, LLC ("Calumet"), a wholly-owned subsidiary of Calumet, Inc., unless otherwise specified.

© 2024 Calumet, Inc., All Rights Reserved. Rev 8/24

