



BABY CARE

FORMULATING LASTING PARTNERSHIPS

PRODUCTS DESIGNED WITH CARE

The Penreco product lines of Versagel®, petrolatums and mineral oils are used in numerous baby care applications such as oils, balms, moisturizers, lotions, sun block and diaper creams. 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.

penreco®

138 Petrolia St., Karns City, PA 16041
800.437.3188 ■ 724.756.1050 ■ penreco@clmt.com

To request a sample, visit penreco.com.

BABY CARE

Babies have mild and sensitive skin which require extra care and attention. It is very thin and it is much different from the skin of adults. Use of mild soaps, shampoos, wipes, lotions and oil ensures the protection of the baby's delicate skin. Today's baby care products need to be gentle on the skin to prevent rashes and other skin irritations. We take these needs into account to help us produce our Drakeol® Mineral Oil, Versagel®, and Petrolatum that are used in baby care applications.

PRODUCT FORMULARIES

DIAPER RASH LOTION

This diaper lotion goes on easily and has a smooth consistency. High levels of petrolatum and mineral oil create an excellent moisture barrier.

	Raw Material	% W/W
A	Amber Petrolatum	18.75
	Drakeol 7	10.0
	Zinc Oxide	10.0
	Glyceryl Oleate (and) Propylene Glycol	2.0
	Dimethicone	1.0
	Benzyl Alcohol	1.0
	Cod Liver Oil	0.50
	Beeswax	0.25
B	Deionized Water	54.0
	Propylene Glycol	1.0
	Aloe Barbadensis Leaf Juice	1.0
	Sorbitol	0.5
	Total	100%

Procedure: Mix the part A ingredients except zinc oxide at 65 °C. Slowly sift the zinc oxide into the mixture at 65 °C while maintaining good agitation. Mix the part B ingredients at 55 °C. Add part B to part A with good stirring, then allow to cool. Continue mixing and cooling to ambient temperature and add fragrance with mixing as desired.

SUNSCREEN LOTION (IN-VITRO SPF 20)

A smooth sunscreen lotion with minimal whitening and a pleasant, emollient after-feel. Versagel M 200 as a suspension vehicle provides lubricity and wash-off resistance to this formula.

	Raw Material	% W/W
A	Isopropyl Palmitate	5.0
	Cetearyl Alcohol (and) Ceteareth-20	4.0
	Cetyl Dimethicone	2.0
	Glyceryl Stearate (and) PEG-100 Stearate	4.0
	Aluminum Starch Octenylsuccinate	0.5
	Zinc Oxide	5.0
	Versagel M 200	5.0
	Cyclomethicone	4.0
	Ethylhexyl Methoxycinnamate	7.5
B	Deionized Water	59.4
	Propylene Glycol	3.0
	Tetrasodium EDTA	0.1
C	Propylene Glycol (and) Diazolidinyl Urea (and) Methylparaben (and) Propylparaben	2.0
	Total	100%

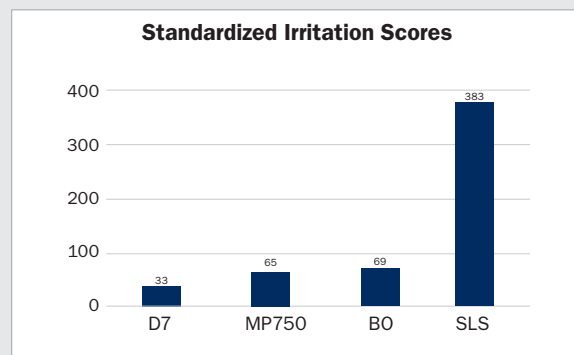
Procedure: Disperse the zinc oxide in Versagel M200 with high agitation. Heat to 70 - 75 °C and add the rest of the part A ingredients with good mixing until the blend is lump-free. Mix part B at 75 - 80 °C with good mixing. Add part A to part B with stirring. Allow the blend to cool to 45 °C. Add part C with stirring. Cool to the desired filling temperature.

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

These formulas are 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>.

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

PETROLATUMS

CUSTOMIZED 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.

- Recognized by the FDA as an OTC "Skin Protectant"
- Non-comedogenic
- USP, EP and JP monographs
- Bio-degradable and not animal tested

PRODUCT SPECIFICATIONS

	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
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

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 trusted key ingredients, our manufacturing process delivers not only a high purity and safe product but is also very stable over time.

- A full line of USP/NF Grades: 40 to 600 SUS
- Unparalleled testing and consistency
- Essentially neutral pH value
- Bio-degradable and not animal tested

PRODUCT SPECIFICATIONS

	VISCOSITY		SPECIFIC GRAVITY	FLASH POINT ASTM D92		POUR POINT ASTM D97	
	ASTM D2161 SUS @ 100 °F	ASTM D7042 CST @ 40 °C	ASTM D4052 @ 77 °F	(Typical)		(Typical)	
				°F	°C	°F	°C
MINERAL OIL USP							
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 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 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

VERSAGEL®

A BETTER WAY TO FORMULATE

Our gelled technology is used in thousands of cosmetic, pharmaceutical and personal care products around the world. Our process gels various substrates in such a way that it promotes superior moisture retention by creating a continuous film enabling oil to be easily spread with no pooling of the product.

- Creates a film barrier for added moisturization, delivers superior stabilization and suspension properties.
- Provides enhanced fragrance retention and waterproofing properties.
- Improves product structure and enhances skin-feel.

PRODUCT SPECIFICATIONS

	VISCOSITY @ 25 °C D2983 (cPs)	VISCOSITY @ 110 °C (cPs)	SPECIFIC GRAVITY @ 25 °C	SAYBOLT COLOR D156	FLASH POINT °C ASTM D92 (D93*)
VERSAGEL M (70 VIS White Mineral Oil)					
M 200	13,330 - 27,700	-	0.8421	+30	>175
M 500	47,000 - 57,000	-	0.8445	+30	>175
M 750	67,000 - 83,000	-	0.8434	+30	>175
M 1600	132,000 - 198,000	-	0.8425	+30	>175
VERSAGEL ME (Hydrogenated Polyisobutene)					
ME 500	50,000 - 75,000	-	0.8264	+30	>149
ME 750	85,000 - 110,000	-	0.8265	+30	>149
ME 1600	140,000 - 180,000	-	0.8280	+30	>149
ME 2000	245,000 - 325,000	-	0.8269	+30	>149
VERSAGEL MX (600 VIS White Mineral Oil)					
MX 500 T	58,000	-	0.8735	+30	>250
MX 750 T	75,000	-	0.8687	+30	>250
MX 1600 T	160,000	-	0.8688	+30	>250
VERSAGEL P (Petrolatum)					
P 100	-	382	0.8649	+Opaque (Lovibond <3.0y)	>249
P 200	-	4.619	0.8650	+Opaque (Lovibond <2.0y)	>249

International Nomenclature of Cosmetic Ingredients (INCI)

Each product line includes the gelled (substrate) and Ethylene/Propylene/Styrene Copolymer, Butylene/Ethylene/Styrene Copolymer. All products are also available with Tinogard®, Pentaerythrityl Tetra-di-t-butyl Hydroxyhydrocinnamate, and will be indicated by a T in the name.

Penreco specializes in NICHE PRODUCT BLENDING to meet customer or monograph (including, not limited to USP/NF, EP, JP, EU) specific requirements.

Regulatory Information:

- White Mineral Oil and Petrolatum is included on the TSCA Inventory.
- The CAS number for White Oil products listed above is 8042-47-5.
- The CAS number for Petrolatum products listed above is 8009-03-8.
- See Safety Data sheet for additional health, safety and disposal information.

Notes:

- All Drakeol products are stabilized with less than 20 ppm dl-alpha tocopherol (vitamin E).
- Colors for all Drakeol products are ASTM Saybolt.
- Test methods used are current USP/ASTM or validated Penreco equivalents.

For More Information:

We offer assistance in blending for specialty applications well as a number of FDA compliant products. If you have questions regarding these products, please contact your Sale Representative. Customer Service and Technical Service can be reached at www.penreco.com or 1-800-245-3952.

Product Specifications are subject to change. All product sales are subject to the applicable terms and conditions.

Tinogard® is a registered trademark of BASF SE.

We are vertically integrated which gives optimal feedstock availability and purity protection to the destination. The high-temperature manufacturing process of our products provides for extraordinary purity. The Calumet refinery in Kams City, PA is certified by the U.S. Food and Drug Administration as a Bulk Pharmaceutical Manufacturer and ISO 9001:2015 Standards by Lloyd's Register Quality Assurance.

penreco®

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