## A BETTER WAY TO FORMULATE

# VERSAGEL®

### INTELLIGENT GEL TECHNOLOGY

Versagel® technology is used in thousands of cosmetic, pharmaceutical 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.

- Clear, colorless (does not discolor with age), hydrophobic, thermally reversible and without syneresis.
- Creates a film barrier for added moisturization, delivers superior stabilization and suspension properties.
- Available in multiple viscosity ranges and compatible with many common ingredients.
- Easier and safer than gels made using metal stearates or fumed silica.
- Provides enhanced fragrance retention and waterproofing properties.

**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 technology, we can provide supporting clinical 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®

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

***To request a sample, visit penreco.com.***

## APPLICATIONS

■ Color Cosmetics ■ Fragrances ■ Hair Products ■ Soap and Bath Products ■ Skin Care ■ Sun Care
■ Pharmaceuticals/Nutraceuticals ■ Healthcare

# VERSAGEL®

## TYPICAL PROPERTIES

| | VISCOSITY @ 25 °C D2983 (cPs) | VISCOSITY @ 110 °C (cPs) | SPECIFIC GRAVITY @ 25/25 °C D4052 | SAYBOLT COLOR D156 | FLASH POINT °C ASTM D92 (D93*) | POLARITY LOG P |
|---|---|---|---|---|---|---|
| **VERSAGEL M (70 VIS White Mineral Oil)** | | | | | | |
| M 200 | 13,330 - 27,700 | - | 0.8421 | +30 | >175 | 10.0 |
| M 500 | 47,000 - 57,000 | - | 0.8445 | +30 | >175 | 10.0 |
| M 750 | 67,000 - 83,000 | - | 0.8434 | +30 | >175 | 10.0 |
| M 1600 | 132,000 - 198,000 | - | 0.8425 | +30 | >175 | 10.0 |
| **VERSAGEL MC (Isohexadecane)** | | | | | | |
| MC 750 | 35,000 - 53,000 | - | 0.7856 | +30 | >95 | 8.2 |
| MC 1600 | 50,000 - 70,000 | - | 0.7983 | +29 | >95 | 8.2 |
| **VERSAGEL MD (Isododecane)** | | | | | | |
| MD 500 | 20,000 - 35,000 | - | 0.7486 | +23 | >45* | 6.2 |
| MD 1600 | 40,000 - 55,000 | - | 0.7496 | +23 | >45* | 6.2 |
| **VERSAGEL ME (Hydrogenated Polyisobutene)** | | | | | | |
| ME 500 | 50,000 - 75,000 | - | 0.8264 | +30 | >149 | 9.7 |
| ME 750 | 85,000 - 110,000 | - | 0.8265 | +30 | >149 | 9.7 |
| ME 1600 | 140,000 - 180,000 | - | 0.8280 | +30 | >149 | 9.7 |
| ME 2000 | 245,000 - 325,000 | - | 0.8269 | +30 | >149 | 9.7 |
| **VERSAGEL MG (Hydrogenated Poly (C6-14 Olefin))** | | | | | | |
| MG 500 T | 50,000 - 75,000 | - | 0.8204 | +30 | >175 | 6.2 |
| MG 750 T | 85,000 - 110,000 | - | 0.8169 | +30 | >175 | 6.2 |
| MG 1600 T | 140,000 - 180,000 | - | 0.8292 | +29 | >175 | 6.2 |
| **VERSAGEL MX (600 VIS White Mineral Oil)** | | | | | | |
| MX 500 T | 58,400 | - | 0.8735 | +30 | >250 | 10.0 |
| MX 750 T | 75,500 | - | 0.8687 | +30 | >250 | 10.0 |
| MX 1600 T | 132,000 - 198,000 | - | 0.8688 | +30 | >250 | 10.0 |
| **VERSAGEL P (Petrolatum)** | | | | | | |
| P 100 | - | 382 | 0.8649 | +Opaque (Lovibond <3.0y) | >249 | 10.5 |
| P 200 | - | 4,619 | 0.8650 | +Opaque (Lovibond <2.0y) | >249 | 10.5 |
| **VERSAGEL SF (C13-14 Isoparaffin)** | | | | | | |
| SF | 12,000 | - | 0.7824 | +30 | >96 | 6.8 |
| **VERSAGEL ML (C12-15 Alkyl Benzoate)** | | | | | | |
| ML 750 | 99,000 | - | 0.9262 | +30 | >199 | 8.2 |
| ML 1600 | 250,000 | - | 0.9272 | +29 | >199 | 8.2 |
| **VERSAGEL MN (Isononyl Isononanoate)** | | | | | | |
| MN 750 | 155,000 | - | 0.8540 | +28 | >149 | 5.9 |
| MN 1600 | 265,000 - 339,000 | - | 0.8549 | +29 | >149 | 5.9 |
| **VERSAGEL MP (Isopropyl Palmitate)** | | | | | | |
| MP 750 | 82,000 - 108,000 | - | 0.8520 | +30 | >160 | 8.1 |
| MP 1600 | 160,000 - 200,000 | - | 0.8520 | +28 | >160 | 8.1 |
| **VERSAGEL HSQ (C13-15 Alkane)** | | | | | | |
| HSQ 200 T | 13,500 | | 0.8080 | +25 | >200 | 6.2 |
| **VERSAGEL SQ (Squalane)** | | | | | | |
| SQ 500 T | 52,000 | - | 0.8076 | +28 | >218 | 9.6 |
| SQ 1600 T | 138,000 | - | 0.8077 | +29 | >218 | 9.6 |

**Hydrocarbons, Esters and Natural Hydrocarbons**

Versagel products are used in a wide variety of formulations. Product properties such as texture and phase stability depend on several factors like the Versagel used, it's viscosity, other formulation ingredients, relative amounts of all ingredients, order of addition, and other formulation variables. The calculated Log P (Mol Inspiration) can be used to compare the relative polarity of each Versagel. We hope that formulators find these Log P values helpful when deciding which Versagel to incorporate into their formulations. In general, the non-polar Versagel products have higher Log P values and should mix well with non-polar formulation bases. Surfactants and emulsifiers enable mixing of polar and non-polar substances so they can have a significant impact on formula stability when utilized.

**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. Tinogard® is a registered trademark of BASF SE.