

Innovative Plant Derived Functional Specialties

When it comes to what types of natural cosmetic products that are in demand, those that are developed to provide specialized functional results are at the top of the list. Utilizing plant derived materials such as rapeseed, soy and corn, Phoenix Chemical continues to churn out materials that deliver proven unique performance characteristics while focusing on sustainability and reducing environmental impact. These products can directly replace and improve upon petroleum based ingredients and provide cosmetics with a real functional edge.

Plant based beauty options abound. The Phoenix products which are 100% plant derived are esters. There are five functional categories of these materials. These are:

- **Glossy Lipstick & Color Cosmetic Esters**
- **Ultra Light Esters**
- **Cosmetic Thickeners: Emulsifiers, Gelling Agents, Stabilizers, Rheological Modifier**
- **Lubricious Buttery Texture & Melting at Skin Temperature**
- **Lanolin Oil Substitute**

Glossy Lipstick & Color Cosmetic Esters

- **Pelemol D3GP** (Dimer Dilinoeyl Dimer Dilinoleate (and) Propanediol Dicaprylate/Caprata (and) Polyglyceryl-3 Behenate). **Pelemol D3GP** is a 100% vegetable derived functional equivalent to animal based mixed alkyl cholesterol and lanosterol based esters. Its soft butter like texture melts readily into the lips and provides long lasting gloss. It imparts cushion and can function as a functional replacement for petrolatum. The product is odorless and tasteless.
- **Pelemol PHS-8 (Polyhydroxystearic Acid)** is the homopolymerization of hydroxystearic acid. The vegetable source of hydroxystearic acid is castor. **Pelemol PHS-8** is a viscous yellow liquid with high gloss.
- **Pelemol P3D** (Polypropanediol Dimer Dilinoleate) is a soy and corn derived ester which has a strong refractive index of 1.486. It is great for products requiring long lasting high shine.
- **Pelemol 6GPR** (Polyglyceryl-6 Polyricinoleate) is the reaction of Polyglyceryl-6 and Ricinoleic Acid. It features high gloss and is a very lubricious emollient and pigment wetting agent. This product has a refractive index of 1.4775.
- **Pelemol DD** (Dimer Dilinoleyl Dimer Dilinoleate) is the reaction of dilinoleic acid and dilinoleyl alcohol. The vegetable source for dilinoleic acid is soybean. The vegetable source for dilinoleyl alcohol is soybean. It is a substantive liquid ester with both intense cushion and a high degree of gloss.



- **Pelemol GTIS** (Triisostearin) is the reaction product of glycerine and isostearic acid. The vegetable source for glycerin is soybean. The vegetable source for isostearic acid is soybean. **Pelemol GTIS** offers excellent cushion and a glossy appearance. It is uniquely suited for use in lipstick, and other lip products where it can be useful in modifying melting points. Recommended use levels 2 to 8%.

Ultra Light Esters

- **Pelemol P-810** (Propanediol Dicaprylate/Caprates) The product is derived from corn and coconut and imparts a light skin feel.
- **Pelemol D5R-V** (Propanediol Dicaprylate/Caprates (and) Diisostearyl Malate) has been developed as an effective 100% vegetable derived replacement for Cyclomethicone D5. It achieves the identical flow, spreadability, initial feel, softness and cushion on rub. The product has virtually identical solubility characteristics and, in addition, the refractive index for **Pelemol D5R-V** (1.4435) is higher than that (1.3895) for Cyclomethicone D5 resulting in **Pelemol D5R-V** creating a more glossy appearance on skin.

Cosmetic Thickeners

Emulsifier

- **Pelemol P-1263** (Polyglyceryl-10 Hexaoleate (and) Polyglyceryl-6 Polyricinoleate) is comprised of unique plant derived polymers with considerable hydrophilic functionality and balanced hydrophobicity which make it possible to prepare water-in-oil emulsions that constitute stable compositions that promote the following benefits:
 - W/O Emulsions formed with a single emulsifier providing superior viscosity
 - Production of w/o emulsions with a light, fresh and creamy feel
 - Excellent emulsion stability due to its high molecular weight
 - Emulsification at low usage level and high internal phase loading
 - Also suitable as a co-emulsifier with high HLB emulsions for o/w emulsions

Pelemol P-1263 is highly compatible with actives and formulation ingredients such as sunscreens (organic and physical particulates), electrolytes, pigments and high and low pH ingredients.

Emulsion Stabilizers & Gelling Agents

The addition of 2% of any of our emulsion stabilizers such as **Pelemol Behenates**, **Pelemol BB** (Behenyl Behenate), **Pelemol GMB** (Glyceryl Behenate) or **Phoenix HSA** (Hydroxystearic Acid), in the oil phase, will provide a tight and creamy emulsion. When



used at 5%, these products will gel oils and esters. The degree of softness of the gel can be changed by the amount of these materials used. **Pelemol BB** is the reaction product of Behenyl Alcohol and Behenic Acid. The vegetable source for **Pelemol BB** is rapeseed. **Pelemol GMB** is the reaction product of glycerine and behenic acid. The vegetable source for glycerine is soybean. The vegetable source for behenic acid is rapeseed. The vegetable source for **Phoenix HSA** is castor.

Rheological Modifier

Pelemol GTHS (Trihydroxystearin) is an ideal thickening agent and rheology modifier. Trihydroxystearin is derived from castor.

Esters Which Are Lubricious as Butter

- **Pelemol JEC** (Triisostearin / Gylceryl Behenate) is an extremely soft paste and brings a smooth creamy pleasurable feeling to cosmetics. The vegetable source of **Pelemol JEC** is soybean.
- **Pelemol TT** (Tribehenin and Caprylic/Capric Triglyceride) The vegetable source for tribehenin is rapeseed. The vegetable source for Caprylic/ Capric Triglyceride is coconut. **Pelemol TT** is a luxurious butter which melts at skin temperature. It has a feel similar to shea butter.
- **Pelemol ISB** (Isostearyl Behenate) is the reaction product of isostearyl alcohol and behenic acid. The vegetable source for isostearyl alcohol is soybean. The vegetable source for behenic acid is rapeseed. **Pelemol ISB** is a soft, opaque, off-white paste at ambient temperatures. It melts at skin temperature and imparts an extremely emollient and soft feel to skin. **Pelemol ISB** is generally soluble in oil and insoluble in water. It is an effective moisture barrier and imparts “slip” to powders.

Lanolin Oil Substitute

- **Pelemol VL** (Triisostearin / Dimer Dilinoleyl Dimer Dilinoleate) is derived from soybean. It is an outstanding drop-in substitute for Lanolin Oil.

Backed by a strong and growing research investment, the development of new plant derived functional specialties will remain a technological competency at Phoenix. Many new commercial materials will be introduced this year to satisfy evolving customer requirements. These products will help you tout the performance characteristics of your “eco- conscious” cosmetics.