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High Performance
Sun Care Products

Phoenix Chemical High Performance Sun Care Products

Sun care products must provide high performance and remain long-lasting. *Phoenix Chemical* has developed a broad portfolio of sun care products that will provide formulators with an edge. Whether targeting SPF enhancement through efficacious solvency, emulsification compatibility with actives (organic and physical particulates) or developing multi-functional film formers to provide aesthetically pleasing wear characteristics, there is much new sun care technology under development. These initiatives underscore our commitment to adapt and improve sun care actives to satisfy evolving customer and regulatory requirements. Be assured that our sun care technology will help you pack more “screen” in your sunscreen and provide the protection that your sunscreen label calls for.

Phoenix improves your premium performance sun care products by offering:

Phenomulse® A Universal Emulsifier System

Phenomulse-100

Pelemols® Versatile Alkylene-Oxide Free W/O Emulsifiers

**Pelemol P-1263
Pelemol 3G22
Pelemol GMB**

Pecogel® & Giovarez® Water Resistant Film Formers

**Giovarez AC-5099M
Giovarez BTB-50
Giovarez P-0580
Giovarez 1800
Pecogel S-1120**

Pecosils® SPF Enhancer, O/W Emulsifier, & Counter Irritants

**Pecosil PS-100
Pecosil PS-112**

Pecosils®, Pelemols® & Phoenoxol® Sunscreen Solvents

**Pelemol BIP-PC
Phoenoxol DB-10P
Pelemol P-810
Pelemol P-99
Pelemol PGDP
Pecosil F-112**

Pelemols® & Pecosils® Pigment Dispersants

**Pelemol PHS-8
Pelemol 899
Pelemol PRA-8
Pelemol TGC
Pecosil PS-100
Pecosil PS-112
Pelemol 6GPR**

Suggested use level: 2.0.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former

Pecosil® Pigment Dispersant Series

- **Pecosil PS-112** (Dimethicone PEG-7 Phosphate) This is a unique water soluble silicone phosphate, its nature as an anionic, polymeric silicone enables it to effectively disperse Titanium Dioxide and Zinc Oxide. 60% stable, milk-white dispersions of Titanium Dioxide have been prepared in PECOSIL PS-112. PECOSIL PS-112 also contributes anti-irritant properties and SPF enhancement, skin wetting, and ease of uniform application.

Suggested use level: 10.0% - 60.0%

Application: Sunblock Dispersant

- **Pecosil PS-100** (Dimethicone PEG-7 Phosphate) This is a lower molecular weight analog of PECOSIL PS-112. Its properties are similar to PECOSIL PS-112 but perhaps more useful in pigment systems to be defined by the formulator.

- **Giovarez 1800 (Polyvinyl Stearyl Ether)** this **Polymeric Wax** can be easily incorporated with sun care actives to contribute smooth payout, long wear and water resistance.

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former

- **Giovarez P-0580 (Polyurethane-21)** this **Water Soluble Film Former** is a unique solvent free 35% polyurethane emulsion, which forms a tough and water insoluble polyurethane film.

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former

Pelemol Pigment DISPERSANT SERIES

Pelemol® Pigment Dispersant Series consists of cosmetic esters which are effective in making dispersions of pigments such as Titanium Dioxide (treated/untreated), Zinc Oxide (treated/untreated) for use in sunscreens. Phoenix has conducted studies indicating that these esters create dispersions which can maximize pigment load and provide a pronounced effect on dispersion efficacy.

- **Pelemol PRA-8 (Polyricinoleic Acid)** 100% Plant Derived
- **Pelemol 6GPR (Polyglyceryl-6 Polyricinoleate)**
100% Active, Liquid, Completely Vegetable Derived, Polymeric Octapolyester
Very substantive to skin, lubricious and glossy
Functions as a pigment wetting and dispersing agent
Useful in Lipstick products, skin and make-up products
Also useful in physical sunscreen dispersions of TiO₂/ZnO
Functional PEG/PPG Free replacement for PEG-30 Dipolyhydroxystearate
- **Pelemol PHS-8 (Polyhydroxystearic Acid)** 100% Plant Derived
- **Pelemol TGC (Trioctyldodecyl Citrate)** 100% Plant Derived
- **Pelemol 899 (Isononyl Isononanoate (and) Ethylhexyl Isononanoate)**
- **Pelemol P-1263 (Polyglyceryl-10 Hexaoleate & Polyglyceryl-6 Polyricinoleate)**
A versatile polymeric Water-In-Oil Emulsifier for Sunscreen Actives
100% Active, easy to handle liquid, all vegetable sourced/derived polyester.
Carefully selected structure balanced combination
Excellent PEG/PPG Free Water-In-Oil Emulsifier
Primarily a W/O Emulsifier; suitable as a Co-Emulsifier with high HLB Emulsifiers for O/W Emulsions
A PEG/PPG Free replacement for PEG-30 Dipolyhydroxystearate

EMULSIFIERS

Phenomulse® 100 is a Universal O/W Emulsification System offering your sunscreens the best characteristics of oil-in-water emulsions (stability, costs and aesthetics). The **Phenomulse-100** emulsification system can achieve the benefits of oil-in-water systems, as its unique loading characteristics enable one to easily incorporate sunscreen actives and a variety of other hydrophobes into the internal phase including film formers, esters and silicones and long-wearing materials such as fluorosilicones or alkyl fluorosilicone waxes.

- **Phenomulse-100** (Polyhydroxystearic acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate)

Suggested use level: 50.0% - 90.0%

Applications: Stable long wearing and aesthetically pleasing cosmetic organic sunscreens

Pecosil® PS-100 and Pecosil® PS-112 function as SPF enhancers, O/W Emulsifiers, and Counter-Irritants. These water soluble anionic silicone phosphates are truly in a class of their own delivering superior emulsifier efficiency. They have excellent wetting characteristics and are also useful in helping to reduce the irritation caused by sulfates and other harsh ingredients.

- **Pecosil PS-100** (Dimethicone PEG-7 Phosphate)
- **Pecosil PS-112** (Dimethicone PEG-7 Phosphate)

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens, Sunblocks, Emulsifiers, SPF Booster & Counter Irritants

Pelemol® Versatile Alkylene-Oxide Free W/O Emulsifiers are plant derived natural emulsifiers that are highly compatible with actives and formulation ingredients such as organic sunscreens and sunblocks. These emulsifiers promote superior viscosity with a creamy light feel.

- **Pelemol P-1263** (Polyglyceryl-10 Hexaoleate (and) Polyglyceryl-6 Polyricinoleate)

Suggested use level: 2.0% - 4.0%

Applications: Sunscreens and Sunblocks

- **Pelemol 3G22** (Polyglyceryl-3 Behenate)
100% active off-white flake
All vegetable derived
PEG/PPG free ester with self-emulsifying properties
Excellent w/o emulsifier

Suggested use level: 2.0% - 5.0%

Application: Emulsifier and/or emulsion stabilizer in sunscreen creams and lotions and in sunblocks

- **Pelemol GMB** (Glyceryl Behenate) is an excellent emulsion stabilizer when added to the oil phase of sunscreen creams and lotions
 - 100% active off-white flake
 - PEG/PPG free ester
 - All vegetable derived
 - Water insoluble

Suggested use level: 2.0% - 5.0%

Application: Sunscreens Creams and Lotions

Sunscreen Solvents

- **Pelemol BIP-PC** (Butylphthalimide and Isopropylphthalimide) is a clear liquid eutectic mixture which is an extremely powerful sunscreen solvent. It is a particularly powerful solvent for Oxybenzone and Avobenzone.

Sunscreen Solubility:

65gms. Oxybenzone per 100gms. PELEMOL BIP-PC

40gms. Avobenzone per 100gms. PELEMOL BIP-PC

Suggested use level: 5.0% - 10.0%

Applications: Sunscreen Solvent

- **Phenoxyol DB-10P (PPG-10 Butanediol)** is a water-white liquid solvent which is excellent for Benzophenone-3 and other sunscreen actives. Additionally, it will contribute to non-whitening in stick products. It is both water soluble and oil soluble.

Suggested use level: 5.0% - 10.0%

Applications: Sunscreen Solvent and Skin Care Active Solubilizer

- **Pecosil F-112 (Fluoro Dimethicone PEG-7 Phosphate)** A truly unique water soluble fluorosilicone. It is a 100% active, clear liquid and contributes wetting and spreadability enhanced by the fluoro moiety in the molecule.

Suggested use level: 5.0% - 20.0%

Applications: Sunblock Dispersant and Emollient

- **Pelemol P-810 (Propanediol Dicaprylate/Caprates)**
 - 100% active, 100% vegetable derived
 - Extremely dry emollient
 - 100% vegetable derived replacement for synthetically derived sunscreen solvents

Suggested use level: 5.0% - 30.0%

Applications: Sunscreen Solvent especially when dry formulations are desirable

- **Pelemol P-99 (Propanediol Dipelargonate)**
 - 100% active, 100% vegetable derived
 - Extremely dry solvent/emollient
 - Deliberately produced as a 100% vegetable derived replacement for synthetically derived propylene glycol dipelargonate.

Suggested use level: 5.0% - 30.0%

Applications: Sunscreen Solvent and Emollient

- **Pelemol PGDP (Propylene glycol dipelargonate)** although partially synthetically derived PELEMOL PGDP is a very effective sunscreen solvent and should not be overlooked when the use of a synthetically derived solvent is acceptable.

Suggested use level: 5.0% - 30.0%

Applications: Sunscreen Solvent

Water Resistant Film Formers

Pecogel® Cosmetic Ingredients are a family of aqueous hydrogels comprised of vinylpyrrolidone polymers or copolymers and hydrophilic polyurethane. These materials form interpolymers with unique rheological and film-forming properties, plus the ability to complex with UV absorbers and to retain sunscreen actives within the polymer matrix and contributing to long-wear SPF protection.

- **Pecogel S-1120** (VP/Dimethiconylacrylate/Polycarbamyl Polyglycol Ester)

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former

Giovarez® Oil Soluble Film Formers are a family of acrylic polymers in a 50% solution of Isododecane. They are clear and dry to a water-insoluble and flexible film. They also contribute to long-wear SPF protection by retaining sunscreen actives within their polymer matrix.

- **Giovarez AC-5099M** (Isododecane (and) Acrylates Copolymer)
An acrylic copolymer, 50% in isododecane

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former

- **Giovarez BTB-50** (Behenyl Methacrylate/t-Butyl Methacrylate Copolymer)

Suggested use level: 5.0% - 10.0%

Applications: Sunscreens and Sunblock Film Former