G-GEL[™]

Bentonite Clay Gels, Remastered



Create Possibilities

Product INCI and Applications

TRADE NAME	INCI	FEATURES	MARKETING FOCUS
Gg G-Gel Eco-HMS	C13-15 Alkane (Sugarcane) (and) Quaternium-90 Bentonite (and) Triethyl Citrate	The Eco-HMS gel is dispersed in sugar- cane-derived hemisqualane. It features an ISO Natural Origin Index Score of 0.998 (99.8%), and was designed for Clean Beauty and natural cosmetic products.	Clean Beauty Color CosmeticsClean Beauty SunscreensClean Emulsions
Gg Silkane	C15-19 Alkane (and) Quaternium-90 Bentonite (and) Triethyl Citrate	The Silkane gel was designed for silicone-free and oil-free formulations requiring high-end sensory and stability with less dependence on silicone and silicone elastomers.	Silicone-free Color CosmeticsNail Products
Gg 100V	Dimethicone (and) Ethylhexyl Palmitate (and) Quaternium-90 Bentonite (and) Propylene Carbonate	The 100V is a dimethicone-based gel that features powerful suspension and thickening efficacy with excellent sensory profile.	Sensory-focused color cosmetics
Gg 102V	Cyclopentasiloxane (and) Ethylhexyl Palmitate (and) Quaternium-90 Bentonite (and) Propylene Carbonate	The 102V is the workhorse in the G-Gel portfolio, with excellent performance in all silicone focused color cosmetic and water-in-silicone emulsions.	Silicone-based color cosmeticsWater-in-silicone emulsions
Gg G-Gel CCT 200	Caprylic/Capric Triglyceride (and) Stearalkonium-90 Bentonite (and) Propylene Carbonate	The CCT 200 gel is suitable for stabilizing and suspending formulations requiring more medium polarity oils.	Green Cosmetics and Emulsions
 All Formulations - Anhydrous, Water-in-Oil, Water-in-Silicone, Oil-in-Water, Oil-in-Glycerin Color Cosmetics Sunscreens - Mineral (for suspension) and Chemical (for stability) Skin Care Products, including Lotions and Creams Antiperspirants. Deodorant 			

Need Samples?

We believe sample requests should be provided generously. We understand trying, testing, and evaluating our ingredients and intermediates are all critical to your research, development, and production processes. So go ahead, ask and you shall receive.

Visit Applechem.com or call 862.210.8344 to Order Samples

Gg G-GEL[™] BENTONITE CLAY RHEOLOGY MODIFIERS

Bentonite clay gels, refreshed for the modern formulator

Organoclay gels are dispersions of organically modified bentonite clay. They are used in cosmetic applications as a primary rheological additive to build thixotropic viscosity and suspension within the oil phase of formulations.

Traditionally used in color cosmetics, they can also be used to stabilize waterin-oil emulsions in both skincare and suncare applications. That said, this technology has been around for so long that formulators have simply accepted the functionality issues of traditional gels - poor long term stability, industrial grade quality not meant for cosmetics, and inherent formulation restrictions on the types of oils that can be used.

The G-GELTM product series eliminates these old issues and introduces new features tailored for the modern formulator:

Formulation Stability

Higher yield stress for improved suspension with steeper shear-thinning for smoother sensory.

Boost Heat Stability

Creates a formulation rheology profile stable at temperatures up to 70 Celsius!

Formulation Flexibility

Compatible in every type of oil - naturals, esters, hydrocarbons, and silicones.

Manufacturing Friendly

No more oil separation in your raw material, consistent clay levels in every production batch.

Cold Processable

Only mechanical force is necessary to incorporate G-GEL into your formulation.



Features & Benefits



Universal Compatibility

- High level suspension performance in every type of oil - naturals, hydrocarbons, and silicones.
- Increased product flexibility with no restrictions on usage.
- Reduce inventory costs by replacing many gels with one!

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Reliable Stability

- Never need to remix a gel before use.
- Consistent clay levels from one batch to the next for dependable consistency.
- Excellent performance even after long term storage



Improved Viscosity Curve

- Higher yield stress for improved suspension.
- Steeper viscosity drop-off at high shear levels, translating to enhanced glide and lubricity during application.

В





Better Process, Better Product

Applechem's proprietary production method allows for increased exfoliation of organoclay platelet stacks, leading to much improved product performance and stability.

(A) Standard Organoclay Gels

Traditional gels have poor exfoliation with many organoclay stacks still stuck together, leading to poor stability (oil bleeding over time), reduced efficacy, and inconsistent performance.

(B) G-GELTM

Organoclay gels are fully exfoliated which reduces oil syneresis, creating a much more stable gel with improved efficacy and sensorial properties.



Universal Compatibility for Formulation Flexibility



One Gel for Everything

From silicones to esters, natural oils to hydrocarbons, G-GEL will provide far better suspension and viscosity performance in all oil mediums versus the leading silicone-based organoclay gels.

This allows for increased formulation and cost flexibility since formulators are no longer restricted to pairing specific oils to the organoclay gel, and vice versa.

This graph compares the yield stress at 10% usage in Applechem's "Weightless Liquid Foundation", Version B.



Stronger Suspension with Smoother Spreading



More Stability, Better Sensory

Both the traditional G-GEL 102V and our new G-GEL Silkane feature stronger yield stress as well as a more optimal shear curve when compared to the most popular D5-based gel on the market. This translates to higher suspension power as well as more improved sensory during application.

Of special note is the G-GEL Silkane, a gel designed for replacing silicones outperforming the competitor's silicone clay gel in the silicone emulsion. This highlights the power and versatility of our G-GEL technology.

This graph compares the yield stress at 10% usage in Applechem's "Weightless Liquid Foundation", Version B.



Incredible Performance in Isododecane



Freedom from IDD-based Gels

Our new G-GEL Silkane feature dramatically improved yield stress when compared to the most popular isododecane-based gels on the market. In fact this performance difference is so stark we find it difficult to understate the level of improved suspension and rheology you'll find in any cosmetic formulation involving heavy use of isododecane.

This graph compares the yield stress at 10% usage in Applechem's "Weightless Liquid Foundation", Version A.



Suspension and Stability at High Temperatures



Thermal Stability and Versatility

A formula's Elastic Shear Modulus indicates its suspension efficacy in specific environments. This graph demonstrates that G-GEL formulations retain their suspension stability with minimal variance even at temperatures as high as 60 Celsius.

This heat stability boost is maintained through a wide range of water-in-silicone ratios, which gives formulators a lot of flexibility - use G-GEL with confidence in anything from liquid eyeliner to creamy foundations.

This graph compares the Elastic Shear Modulus (G') using Applechem's "Natural Fusion" CC Cream formulation.

Weightless Liquid Foundation

This quick-drying foundation features an ultra-creamy sensory with excellent coverage and water resistance.

It is a stable water-in-silicone emulsion system that contains **G-GEL** for increased suspension, stability, and sensorial glide. The addition of **Applecare PDS-300** also ensures a well-dispersed, finer pigment grind that boosts coverage and sensory while reducing the need for pre-treated pigments.

Specifications

- Passed 4 Week Heat Stability Test (50 Celsius, Oven)
- Passed Freeze-Thaw Stability Test (3 cycles)

Processing Method

- 1. Mix Phase A ingredients until uniform and set aside.
- In main vessel, mix Phase B by dispersion blade at 800 RPM while heating to 85°C for 30 minutes.
- 3. Pass Phase B through 3-roll mill twice (first at gap ratio 7:3, then 3:1).
- 4. Add Phase C ingredients to Phase B and mix with dispersion blade for 15 minutes at 800 RPM.
- 5. In a separate beaker, mix Phase D until uniform.
- Once uniform, add Phase D to main phase and continue mixing with dispersion blade for 5 minutes at 800 RPM.
- 7. Add Phase A slowly to main phase while mixing, increasing speed as necessary.
- Homogenize with Silverson Homogenizer for 5 minutes at 4500 RPM.
- Move main phase back to dispersion blade and add Phase E while mixing for 5 minutes at 1000 RPM.

HASE	INCINAME (TRADE NAME)	VERSION A WT%	VERSION B WT%
Α	Distilled Water	30.00	30.00
	Sodium Chloride	1.00	1.00
	Glycerin	4.00	4.00
	Phenoxylethanol (and)Ethylhexyl Glycerin (Euxyl PE 9010, Schulke)	0.20	0.20
В	C13-15Alkane (Sugarcane) (Hemisqualane, Aprinnova)	3.58	3.58
	Pigment Grade Titanium Dioxide	12.53	12.53
	Yellow Iron Oxide (Non-Surface Treated)	1.97	1.97
	Red Iron Oxide (Non-Surface Treated)	0.34	0.34
	Black Iron Oxide (Non-Surface Treated)	0.18	0.18
	Applecare PDS-300 - Natural Pigment Dispersant	1.20	1.20
C	G-GEL [™] (All Variants)	10.00	10.00
	Polymethylsilsesquioxane (SilForm Flexible Resin, Momentive)	0.65	0.65
	Polydimethylsiloxane (DC 200 Fluid, Dow Corning)	0.15	0.15
	lsododecane (Ritacane ID, Rita)	15.20	-
	Cyclopentasiloxane	-	15.20
D	lsododecane (Ritacane ID, Rita)	4.00	-
	Cyclopentasiloxane	-	4.00
	PEG-10 Dimethicone (KF-6017, Shin-Etsu)	1.00	1.00
	Lauryl PEG-9 Polydimethylsiloxyethyl Dimethicone (KF-6038, Shin-Etsu)	3.00	3.00
E	HDI/Trimethylol Hexyllactone Crosspolymer (and) Silica (ВРD-500, Коbо)	6.50	6.50
	Nylon-12 (SP-500, Kobo)	4.50	4.50

Natural Fusion CC Cream

This SPF 40, all-natural formula features a creamy, powdery sensory with remarkable coverage for a CC cream.

It is a stable water-in-oil emulsion system that contains **G-GEL Eco-HMS** for increased suspension, stability, and sensorial glide.

Applecare PDS-300 also ensures a welldispersed, finer pigment grind that boosts coverage and sensory while reducing the need for pre-treated pigments.

The addition of our **G-Block** dispersions provides a well-dispersed, broad spectrum natural SPF protection.

Phytocare-HA CG 1M is a refined natural active sourced from snow mushrooms that both replicates and improves upon the hydration benefits of hyaluronic acid.

Specifications

- Passed 4 Week Heat Stability Test (50 Celsius, Oven)
- Passed Freeze-Thaw Stability Test (3 cycles)

Processing Method

- Mix Phase A ingredients with a propeller at 500 RPM.
- Create a slurry with Phase B ingredients and add to Phase A while mixing. Continue mixing for 10 minutes.
- 3. Blend Phase C pigments in a blender until uniform.
- Add remaining Phase C ingredients and homogenize at 3500-4500 RPM for 5-10 minutes, until G-Gel is well dispersed.
- Move Phase C to dispersion blade and add Phase D while mixing at 700-900 RPM for 5 minutes.

HASE	INCINAME (TRADE NAME)	WT%
Α	Distilled Water	41.03
	Sodium Chloride	1.00
	Glycerin	3.00
	Phenoxylethanol (and) Ethylhexyl Glycerin (Euxyl PE 9010)	0.20
В	Propanediol	3.00
	Phytocare-HA™ CG 1M	0.12
C	Pigment Grade Titanium Dioxide (Non-Surface Treated)	9.00
	Yellow Iron Oxide (Non-Surface Treated)	1.82
	Red Iron Oxide (Non-Surface Treated)	0.32
	Black Iron Oxide (Non-Surface Treated)	0.18
	Applecare PDS-300 - Natural Pigment Dispersant	2.50
	G-Block™ DZ 480 CCT	10.00
	G-Block™ DTB 300 CCT	10.00
	G-GEL™ Eco-HMS	2.50
	Tabul Manadamiata yan	2.00
	Etiyi MacadaMlate (Floramac 10, Floratech)	3.00
	Octadecane (Parafol 18-97, Sasol)	3.00
D	Polyglyceryl-4 Diisostearate/Polyhydroxystearate/Sebacate (Isolan GPS, Evonik)	3.00
E	Dodecane (Parafol 12-97, Sasol)	6.33

6. Slowly add AB into CD while mixing, increasing speed to 1000 RPM as needed.

- 7. Once all water phase has been added, continue mixing for an additional 5 minutes.
- 8. Homogenize main phase at 3500-4500 RPM for 5 minutes. This may heat up the emulsion, allow main phase to cool down below 35°C before proceeding to next step.
- 9. Add Phase E once main phase has cooled below 35°C.

Shimmering Luminosity Strobing Highlighter

This luxuriously creamy highlighter features excellent shimmering pigmentation with a powdery, flawless finish.

It is a stable anhydrous system that contains **G-GEL** for increased suspension, stability, and sensorial glide.

The addition of **Applecare PDS-300** also ensures a well-dispersed, finer pigment grind that boosts coverage and sensory while reducing the need for pre-treated pigments.

OLEOFLEX is flexible film forming texturizer that boosts water resistance and shine. The combination of **EG 200** and **FG 100** offers a broad spectrum of texture, from honey-like flowing gel to bouncy microsponge type elasticity.

Specifications

- Passed 4 Week Heat Stability Test (50 Celsius, Oven)
- Passed Freeze-Thaw Stability Test (3 cycles)

Processing Method

- 1. Heat Phase A to 90°C and homogenize for 10 minutes.
- Add Phase B into Phase A and mix well by a propeller (1000 - 1500 rpm) for 10 minutes at 80°C.
- 3. Add Phase C into AB and mix by propeller at low speed at 80°C.

PHASE	INCINAME (TRADE NAME)	WT%
Α	OleoFlex™ EG 200	3.00
	OleoFlex [™] FG 100	10.00
	G-GEL™ Eco-HMS	16.00
	Isononyl Isononoate (Dermol 99, Alzo International)	10.00
	Grapeseed Oil	7.00
	Dimethicone	7.00
	Caprylic/Capric Triglyceride (and) Polyurethane-79 (Oilkemia 5S, Lubrizol)	3.00
В	Aluminum Starch Octenylsuccinate (Agenaflo OS 9051, Agrana Starch)	1.00
В	Aluminum Starch Octenylsuccinate (Agenaflo OS 9051, Agrana Starch) Talc	1.00
В	Aluminum Starch Octenylsuccinate (Agenaflo 0S 9051, Agrana Starch) Talc Mica	1.00 10.00 14.00
B C	Aluminum Starch Octenylsuccinate (Agenaflo 0S 9051, Agrana Starch) Talc Mica Synthetic Fluorphlogopite (and) Titanium Dioxide (and) Tin Oxide (Timiron Synwhite Satin, EMD Performance Materials)	1.00 10.00 14.00 5.00
B	Aluminum Starch Octenylsuccinate (Agenaflo 0S 9051, Agrana Starch)TalcMicaSynthetic Fluorphlogopite (and) Titanium Dioxide (and) Tin Oxide (Timiron Synwhite Satin, EMD Performance Materials)Calcium Aluminum Borosilicate (and) Titanium Dioxide (and) Silica (and) Iron Oxides (and) Tin Oxide (Ronastar Golden Jewel, EMD Performance Materials)	1.00 10.00 14.00 5.00 5.00
B	Aluminum Starch Octenylsuccinate (Agenaflo 0S 9051, Agrana Starch)TalcMicaSynthetic Fluorphlogopite (and) Titanium Dioxide (and) Tin Oxide (Timiron Synwhite Satin, EMD Performance Materials)Calcium Aluminum Borosilicate (and) Titanium Dioxide (and) Silica (and) Iron Oxides (and) Tin Oxide (Ronastar Golden Jewel, EMD Performance Materials)Mica (and) Titanium Dioxide (and) Iron Oxides (Colorna Transgold MP-28, EMD Performance Materials)	1.00 10.00 14.00 5.00 5.00 5.00

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Applechem was founded in 2003 by Dr. Samuel Lin in a tiny laboratory within a tech incubation center in northern New Jersey. Yet even after transitioning from a one-man startup to a stable, global supplier, we've never forgotten our roots as a small, spirited business with big ideas.

We recognize that every personal connection should be valued and validated with responsive customer service coupled with strong technical aptitude. Moreover, we promise to continue expanding the range of possibilities in the formulation space, creating functionality where none existed before and putting an improved spin on traditional ingredient technologies.

Get in touch with us.

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