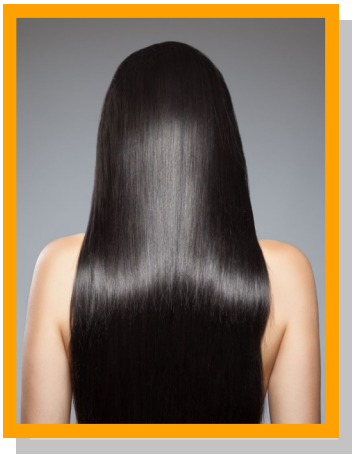
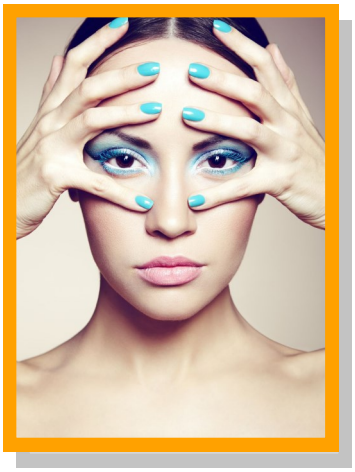
Personal Care Formulary





Performance and Sensorial modifiers for:

- AP/DEO
- Sun Care
- Hair Care

ELEMENTIS
SPECIALTIES

pure in cosmetics

Elementis Specialties is a global supplier of natural hectorite clay and provider of natural biofunctional and active ingredients for hair care, skin care and anti-aging formulations.

Get to know us better.

Before using any of our products, please consult our Safety Data Sheets.

The information in this publication is, to the best of our knowledge, true and accurate, but since the conditions of use are beyond our control, no warranty is given or to be implied in respect of such information. In every case, caution must be exercised to avoid violation or infringement of statutory obligations and any rights belonging to a third party. We are, at all time, willing to study customers' specific outlets involving our products in order to enable their most effective use.

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HAIR CARE

ELEMENTIS
SPECIALTIES

Antiperspirant and Deodorant Technology

Underarm antiperspirants come in a variety of forms, but regardless of whether they are aerosols, sprays, roll-on emulsions or sticks, they all need rheological additives to suspend the Aluminium salts, which are the active ingredients in antiperspirants.

Rheological additives provide uniformity in application and dosage of the product. In stick formulations they act as an in-process suspension aid, so that the Aluminium salts do not settle out while the sticks are still in their molten state. Once the stick has formed the rheological additives provide an internal matrix that enhances structural integrity, smooths application, controls payout rate and provides a soft skin feel.

Benefits of Hectorite Clay

- Suspension of actives
- Uniform dosage of actives
- Prevention of nozzle blocking
- Reduced staining and whitening on fabrics
- Better dispersal of settled actives
- Improved stability
- Improved skin feel

Suspension of Actives

Antiperspirant emulsion formulas were created using either Bentone® 38V or silica at 8% with 20% Aluminium Chlorohydrate. *Figure 1* shows the samples after 1 month at 40°C. Here the modified fumed Silicas all showed stability problems, whereas the BENTONE® 38 V and fumed Silicas all provided good long term stability.

Figure 1. Stability of emulsions with Aluminum Chlorohydrate

In *Figure 2* we can see antiperspirant spray systems containing no additive, BENTONE® 38 V, BENTONE GEL® VS-5PC V and BENTONE GEL® IPM V, 16 seconds after shaking. The sample with no additive has the worst suspension. BENTONE® 38 V improves this, with BENTONE GEL® VS-5PC V and BENTONE GEL® VS-IPM V offering superior suspension. After 1 minute the Aluminium Chlorohydrate in the samples with no additive and BENTONE® 38 V has completely settled to the bottom of the container, whereas the samples with BENTONE GEL® show good to almost complete suspension even after 1 minute, see *Figure 3*. Optimal performance of any organoclay requires addition of chemical activator (typically Propylene Carbonate or Ethanol/Water) and high energy homogenisation to fully delaminate individual clay platelets. Adding BENTONE® 38 V powder and the desired chemical activator using standard homogenisation does not work as efficiently as using the corresponding BENTONE GEL®. Whenever using a BENTONE GEL® the experience and know-how of Elementis Specialties garantees the formulator that the organoclay is fully dispersed.

Figure 2. Suspension of active in aerosol system after 16 seconds

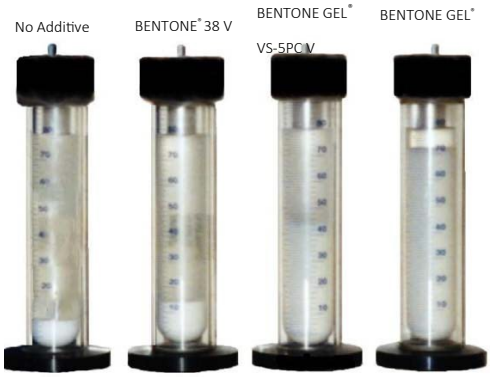


Figure 3. Suspension of active in aerosol system after 1 minute

Less Coagulation

Figure 4. 0.28% Rheological additive in an Antiperspirant Spray

Improved Color

Some antiperspirants leave a white mark on dark clothing, which is often caused by the antiperspirant active. The antiperspirant formulation can be modified to avoid this effect, but it is also desirable to select a rheological additive which does not contribute to any additional whitening.

Black fabric was treated with antiperspirant emulsions , which contained 8% rheological additive. Visual assessment of the whitening intensities, shown in *Figure 5*, correlated well with the numerical differences for the CIE L*a*b* values found by using a portable spectrophotometer.

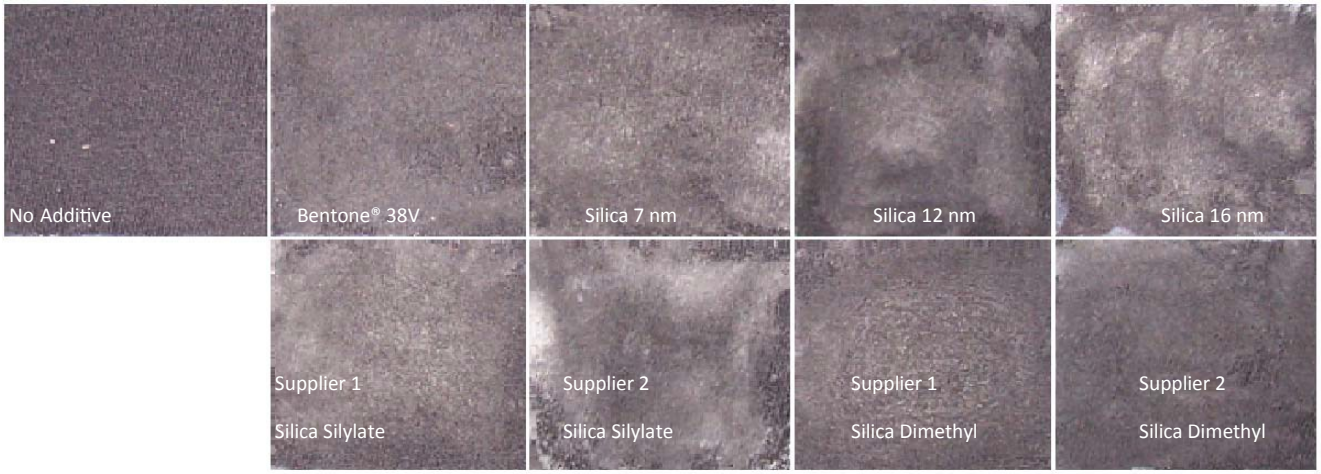
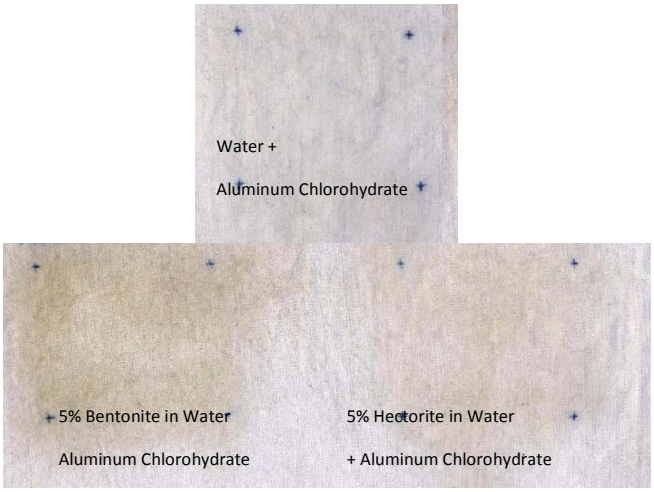


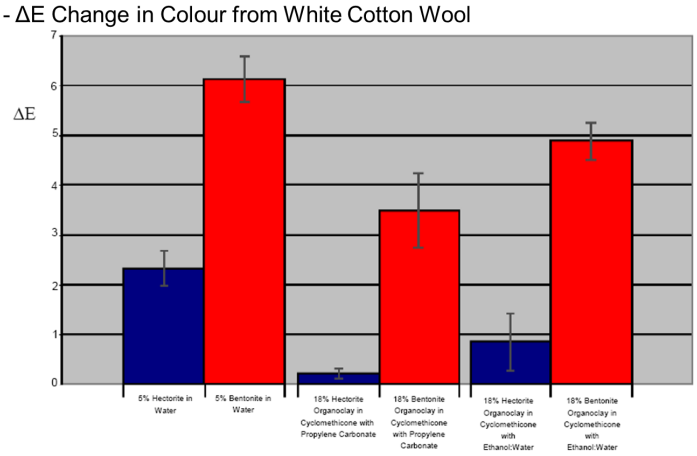
Figure 5. Black cotton fabric whitening of antiperspirant emulsion formulations with Aluminium Chlorohydrate

Everybody is aware of the common problem of armpit (axillary) staining of shirts. This is caused by two effects, firstly the acidic nature of the antiperspirant active Aluminium Chlorohydrate in combination with the eccrine component of sweat causes a reaction to occur, resulting in yellowing of fabric. This is generally not visible immediately. The Aluminium Chlorohydrate is extremely effective at blocking perspiration, so this yellowing occurs only due to repeated wear, and therefore prolonged exposure to small levels of perspiration in combination with the Aluminium salt. [1]

The second cause is due to the iron present in formulation ingredients, including Aluminium salts themselves,

as well as in the laundry detergent and wash water. The deposition of iron onto the fabric causes an almost instant yellowing effect which can be followed by reactions with organic acids in skin secreations producing red/brown stains.[2] Hectorite clay only contains traces of iron, whereas Bentonite clay contains high levels of iron. Hectorite clay and Hectorite organoclays have been shown to have less antiperspirant stain potential than Bentonite products, both as raw materials and in combination with Aluminium Chlorohydrate. While only one representative photograph is shown, each test was run in triplicate for statistical analysis of the measured CIE L*a*b* values.





1. *Orren, L. J., (1976), 'Stain Resistant Anti-Perspirant Composition', US Pat 3934004.*

2. *Klepak, P. B., and Petrillo, A. N., 'The Trouble with Stains', Soap, Perfumery and Cosmetics, Vol. 68, Issue 7, p25-27, 1995.*

AEROSOL AP WITH BENTONE GEL VS-5PC V — KR9/085

A	Bentone® Gel VS-5PC V (Elementis Specialties)	Cyclopentasiloxane (and) Disteardimonium Hectorite (and) Propylene Carbonate	2.00
	Xiamter pmx—0345 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	10.00
	Xiameter pmx-200 Fluid 50cs (Dow Corning)	Dimethicone	2.00
	SDA 40B, 200	Alcohol	0.50
B	Reach 501 (Summit Reheis)	Aluminum Chlorohydrate	10.00
C	Propellant		75.50

Procedure:

1. Combine phase A and mix until homogenous
2. Add phase B to phase A.
3. Fill and charge with phase C.

ANHYDROUS ROLL-ON ANTIPERSPIRANT — KR5/139

A	Bentone® Gel VS-5PC V (Elementis Specialties)	Cyclopentasiloxane (and) Disteardimonium Hectorite (and) Propylene Carbonate	3.00
	Xiamter pmx—0345 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	69.00
	Xiameter pmx-200 Fluid 50cs (Dow Corning)	Dimethicone	5.00
	SDA 40B, 200	Alcohol	2.00
B	Reach 501 (Summit Reheis)	Aluminum Chlorohydrate	20.00
C	Fragrance		1.00

Procedure:

1. Thoroughly combine phase A using a Silverson homogenizer.
2. Switch to low speed propeller mixing.
3. Add phase B to phase A.
4. Add phase C to phase A/B and mix until uniform.

Dry Antiperspirant Stick — TS-289

A	Xiamter pmx—0345 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	39.70
B	Cetearyl Alcohol	Cetearyl Alcohol	22.00
	Lexemul 561 (Inolex)	Glyceryl Stearate (and) PEG-100 Stearate	2.00
	C47-057 (Sun Chemical)	Titanium Dioxide	0.20
C	Bentone® Gel VS-5PC V (Elementis Specialties)	Cyclopentasiloxane (and) Disteardimonium Hectorite (and) Propylene Carbonate	10.00
D	Reach 501 (Summit Reheis)	Aluminum Chlorohydrate	25.00
E	Fragrance		0.10

Procedure:

1. Thoroughly combine phase A using a Silverson homogenizer.
2. Switch to low speed propeller mixing.
3. Add phase B to phase A.
4. Add phase C to phase A/B and mix until uniform.

Solutions for Sun Care

Sunscreen systems are subject to extreme environmental conditions, yet must consistently deliver the active ingredient to provide uniform protection. Predictable rheology and heat stability are crucial to formulators.

Bentone® clay technology offers multiple benefits for today's sun care formulations beyond just thickening. Data has proven its benefits for both formulators and consumers, such as improved product physical stability and rheological properties, enhanced SPF protection and water resistance and modified product texture with good spreadability.

Improving product application properties is a formulation need directly related to product performance. Rheoluxe® rheology modifiers can help control the aesthetics of sunscreen emulsions while providing uniform application with good spreadability.

Benefits of Bentone Gel and Rheoluxe

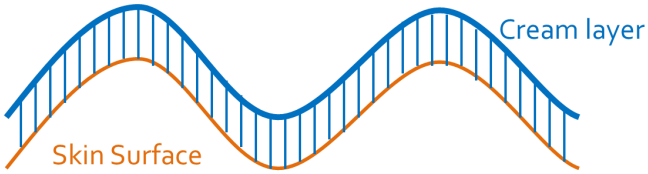
The Bentone Gel® products are optimally dispersed and activated pre-dispersions of hectorite organoclays. They are more suited for sunscreen formulations than the organoclay powders due to ease of use and optimal performance results. Bentone Gel® is typically comprised of one or more organic solvents, a hectorite organoclay (Bentone® 38 VCG or Bentone® 27 V CG) and an organic activator. A wide range of Bentone Gel® products made from various commonly used cosmetic oils, esters and solvents can be selected based on each formulation need.

The Rheoluxe® family of rheology modifiers were designed specifically for personal care applications. They provide an exceptional sensory profile with multifunctional benefits such as transfer resistance and increased film thickness. Rheoluxe is ideally suited for emulsion based sun care products.

Improved application

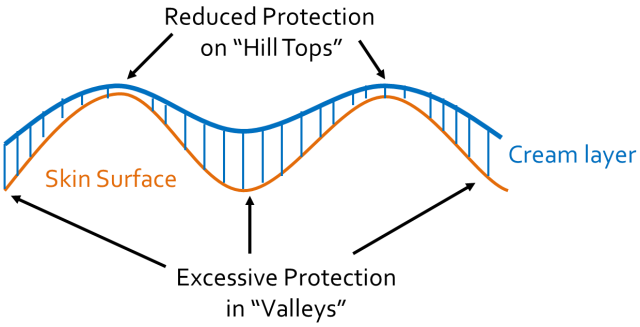
When an emulsion is applied to the sin, it will ideally create a uniform layer covering the skin surface as shown below.

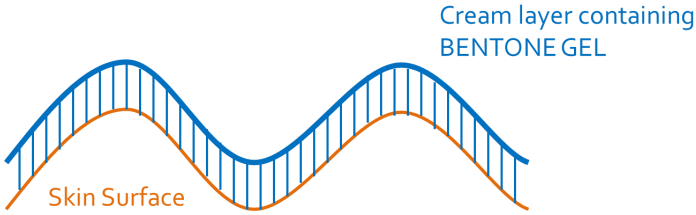
Cream layer immediately after application



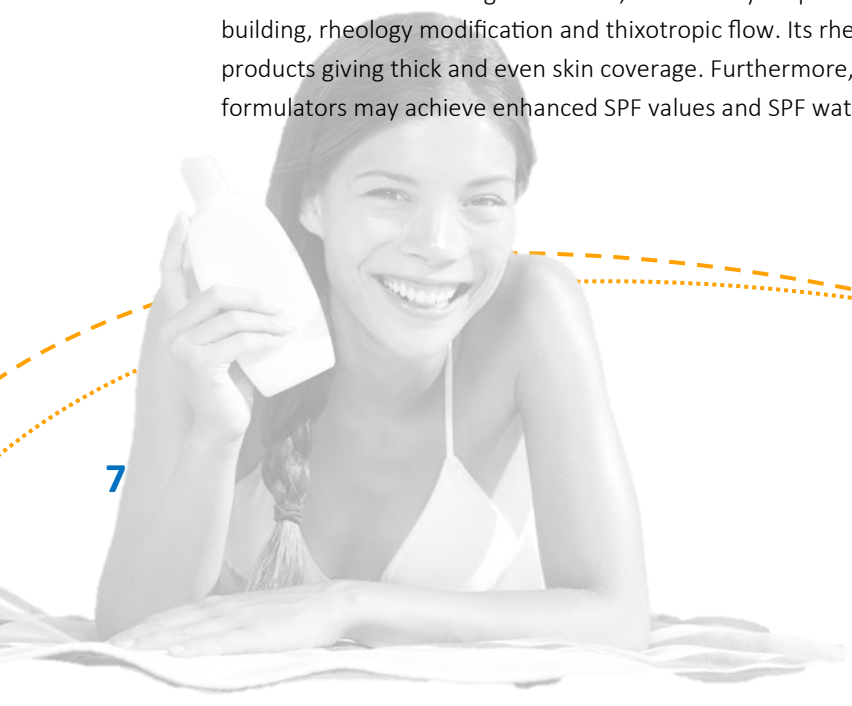
After application, many emulsions begin to pool in valleys, leaving an uneven film on the skin surface. This can be eliminated by the addition of Bentone® hectorite clay products. Bentone® products exhibit shear thinning and thixotropic flow behavior. At low shear rates, the hectorite platelets are in a three-dimensional gel network structure, thus creating a high viscosity medium. With the increase in shear rate, the structure is disturbed and the platelets orientate in the direction of flow, causing a decrease in viscosity. On removal of shear, the reformation of the gel structure occurs at a reduced rate than the deformation, thus producing a system with thixotropic flow behaviour. The thixotropic flow provided by Bentone® hectorite clay products create a uniform layer of protection on the surface of the skin.

Cream layer after "Sagging" or "Slumping"





For product formulation and processing, Bentone® technology helps to stabilize products, even at elevated temperatures. For sunscreens with inorganic actives, it efficiently suspends the particulates. It provides oil and aqueous phase viscosity building, rheology modification and thixotropic flow. Its rheological properties allow the sunscreen manufacturers to create products giving thick and even skin coverage. Furthermore, because of the use of Bentone® rheological additives, formulators may achieve enhanced SPF values and SPF water resistance.



ORGANIC SUN LOTION WITH BENTONE GEL® EUG V — KR7/184

A	Bentone® Gel EUG V (Elementis Specialties)	Octyldodecanol (and) Disteardimonium Hectorite (and) Propylene Carbonate	3.00
	Tegosoft CT (Evonik)	Caprylic/Capric Triglyceride	4.00
	Eutanol G (BASF)	Octyldodecanol	2.50
B	Xiameter pmx-0345 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	10.00
	Parsol MCX (DSM Nutritional)	Ethylhexyl Methoxycinnimate	5.50
	Multiwax W-835 (Sonneborn)	Microcrystalline Wax	3.00
	Tegosoft CN (Evonik)	C12-15 Alkyl Benzoate	2.00
	Dow Corning 5200 Formulation Aid (Dow Corning)	Lauryl PEG/PPG-15/15 Methicone	2.00
	Parsol 1789 (DSM Nutritional)	Butyl methoxybenzoylmethane	1.60
C	Deionized Water	Water	57.40
	Glycerin		7.00
	Sodium Chloride		2.00
C	Preservative		qs

Procedure:

1. Combine phase A and mix until homogenous. Warm to 40°C.
2. Add phase B to phase A and heat to 75°C with propeller mixing.
3. Combine phase C and heat to 75°C.
4. Using high shear mixing, slowly add phase C to combined phase A/B. Continue mixing for 3—5 minutes.
5. Transfer to propeller mixing and begin cooling.
6. Add phase D to batch.
7. Mix until uniform.

ORGANIC SUNSCREEN WITH BENTONE GEL® TN V — KR8/005

A	Bentone® Gel Tn V (Elementis Specialties)	C12-15 Alkyl Benzoate (and) Stearalkonium Hectorite (and) Propylene Carbonate	3.00
	Cosmowax EM5483 PAST (Croda)	Cetearyl Alcohol (and) Ceteareth-20	7.50
	Eusolex 2292 (Merck)	Ethylhexyl Methoxycinnimate	7.50
	Cithrol GMS A/S PAST (Croda)	Glyceryl Stearate (and) PEG-100 Stearate	7.00
	Tegosoft CT (Evonik)	Caprylic/Capric Triglyceride	6.00
	Tegosoft TN (Evonik)	C12-15 Alkyl Benzoate	4.00
	Eusolex 4360 (Merck)	Benzophenone-3	3.00
B	Deionized Water	Water	58.10
	Propylene Glycol		4.00
	Preservative		qs

Procedure:

1. Heat phase A to 75C under silverson mixer.
2. Heat phase B to 75C with propeller mixing.
3. Slowly add phase B to phase A with silverson mixing. Mix for 20 minutes.
4. Transfer to propeller mixing and begin cooling.
5. Cool to 30C.

INORGANIC SUNSCREEN WITH BENTONE GEL® IHD V — KR8/104

A	Bentone® Gel IHD V (Elementis Specialties)	Isohexadecane (and) Disteardimonium Hectorite (and) Propylene Carbonate	8.00
	Tegosoft OS (Evonik)	Ethylhexyl Stearate	13.50
	Fancol® ID-CG (Elementis Specialties)	Isohexadecane	8.00
	Tegosoft M (Evonik)	Isopropyl Myristate	5.00
	Abil EM90 (Evonik)	Cetyl PEG/PPG-10-1 Dimethicone	1.80
	Isolan GO33 (Evonik)	Polyglyceryl-3 Oleate	1.75
B	NANOX™ 200 (Elementis Specialties)	Zinc Oxide	13.50
	T805 (Evonik)	Titanium Dioxide	2.35
C	Deionized Water	Water	41.60
	Sodium Chloride		0.75
	Magnesium Sulfate Heptahydrate		0.75
D	Butylene Glycol		3.00
	Preservative		qs

Procedure:

1. Combine phase A and mix until homogenous. Heat to 75°C.
2. Add phase B to phase A under silverson homogenization. Hold temperature at 75°C.
3. Combine phase C and heat to 75°C.
4. Add phase D to phase C.
5. Using high shear mixing, slowly add phase C/D to combined phase A/B. Continue mixing for 3—5 minutes.
6. Transfer to propeller mixing and begin cooling.
7. Cool to 30°C.

INORGANIC SUN LOTION WITH BENTONE GEL® TN V — KR8/117

A	Bentone® Gel TN V (Elementis Specialties)	C12-15 Alkyl Benzoate (and) Stearalkonium Hectorite (and) Propylene Carbonate	10.00
	Tegosoft CT (Evonik)	Caprylic/Capric Triglyceride	5.00
	Cithrol GMS A/S PAST (Croda)	Glyceryl Stearate (and) PEG-100 Stearate	4.00
	Tegosoft TN (Evonik)	C12-15 Alkyl Benzoate	4.00
	Tego Alkanol 1618 (Evonik)	Cetearyl Alcohol	1.20
	Paratexin P (Azelis)	Propylparaben	0.10
B	NANOX™ 200 (Elementis Specialties)	Zinc Oxide	5.50
	T805 (Evonik)	Titanium Dioxide	2.50
C	Deionized Water	Water	62.36
	Bentone® LT (Elementis Specialties)	Hectorite (and) Hydroxyethylcellulose	0.24
D	Propylene Glycol		4.00
	Paratexin M (Azelis)	Methylparaben	0.10
	Phenoxyethanol		1.00

Procedure:

1. Combine phase “A” and mix until homogenous. Heat to 75°C.
2. Add phase “B” to phase “A” under silverson homogenization. Hold temperature at 75°C.
3. Combine phase “C” and heat to 75°C. Mix until Bentone LT is completely dispersed.
4. Add phase “D” to phase “C”.
5. Using high shear mixing, slowly add phase “C/D” to combined phase “A/B”. Continue mixing for 3—5 minutes.
6. Transfer to propeller mixing and begin cooling.
7. Cool to 30°C.

Organic Sunscreen with Bentone Gel® PTIS V — KR9/096

A	Bentone® Gel PTIS V (Elementis Specialties)	Pentaerythrityl Tetraisostearate (and) Disteardimonium Hectorite (and) Propylene Carbonate	3.00
	Cosmowax EM5483 PAST (Croda)	Cetearyl Alcohol (and) Ceteareth-20	7.50
	Eusolex 2292 (Merck)	Ethylhexyl Methoxycinnimate (and) BHT	7.50
	Cithrol GMS A/S PAST (Croda)	Glyceryl Stearate (and) PEG-100 Stearate	7.00
	Tegosoft CT (Evonik)	Caprylic/Capric Triglyceride	6.00
	Tegosoft TN (Evonik)	C12-15 Alkyl Benzoate	4.00
	Eusolext 4360 (Merck)	Benzophenone-3	3.00
B	Deionized Water	Water	58.10
	Propylene Glycol		4.00
	Preservative		qs

Procedure:

1. Combine phase "A" and heat to 75°C.
2. Combine phase "B" and heat to 75°C.
3. Using silverson, slowly add phase B to phase "A". Continue mixing for 3—5 minutes.
4. Transfer to propeller mixing and begin cooling.
5. Cool to 30°C.

Daily UV Protecting Lotion — S-1000-01

A	KF-6038 (Shin Etsu)	Lauryl PEG-9 Polymethylsiloxyethyl Dimethicone	3.00
	SPD-T5 (Shin Etsu)	Cyclopentasiloxane (and) Titanium Dioxide (and) Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone (and) Aluminum Hydroxide (and) Stearic Acid	20.00
	SPD-Z5 (Shin Etsu)	Zinc Oxide (and) Cyclopentasiloxane (and) Polyglyceryl-3 Polydimethylsiloxyethyl Dimethicone (and) Triethoxysilylethyl Polydimethylsiloxyethyl Hexyl Dimethicone	10.00
	FANCOL® Abyshea (Elementis Specialties)	Crambe Abyssinica Seed Oil (and) Butyrospermum Parkii (Shea Butter) Extract	2.00
	Beeswax	Cera Alba (Beeswax)	1.00
	Finsolv TN (Innospec)	C12-15 Alkyl Benzoate	8.00
B	Deionized Water	Water	52.00
	Sodium Chloride	Sodium Chloride	0.50
	Euxyl K701 (Schulke & Mayr)	Phenoxyethanol (and) Benzoic Acid (and) Dehydroacetic Acid (and) Ethylhexylglycerin	1.00
	Glycerin	Glycerin	3.00
C	Rheoluxe® 8015 (Elementis Specialties)	PEG/PPG-450/50 Trimthylolpropane Dodecyl Ether	1.50

Procedure:

1. Heat phase A ingredients to 60°C with propeller mixing.
2. Combine phase B ingredients and mix until uniform. Heat phase B to 60°C.
3. Very slowly, add phase B to phase A with moderate speed propeller mixing.
4. Cool to room temperature under slow sweep mixing.

Viscosity: RV T-E @ 20rpm: 28,000cps

Hair Care Technology

Hair is an important part of personal appearance, helping to define style and attractiveness. The processes used to create hair styles are often damaging leading to split ends, frizzy hair and breakage. Harsh surfactants strip away essential lipids, heat can melt the internal structure, straightening, bleaching and perming weakens hair and the mechanical force of brushing can lift the cuticle. Protective and repairative products are necessary to keep hair healthy.

Many claims are being made to demonstrate the effectiveness of hair care products. These include aspects like manageability of the hair, protection, strengthening of the hair fibers and anti-breaking properties. Furthermore a visible benefit like the enhancement of the natural shine of the hair is important to achieve customer satisfaction. Elementis offers products proven to improve the overall health and appearance of the hair.

Meeting and making claims: *Needs vs Elementis Specialties' Benefits*

Light feeling, non-greasy sensorial

- Bentone® hydrophilic and organophilic clays
- Rheoluxe® associative thickeners
- Fancor® Abyssinian Oil

Deep conditioning of hair to protect and restore healthy attributes

- Meadowquat® HG
- Fancorsil® LIM
- Fancor® Abyssinian Oil

Perfuming - long lasting fragrance

- Meadowquat® HG

Protection of color

- Meadowquat® HG
- Fancorsil® LIM

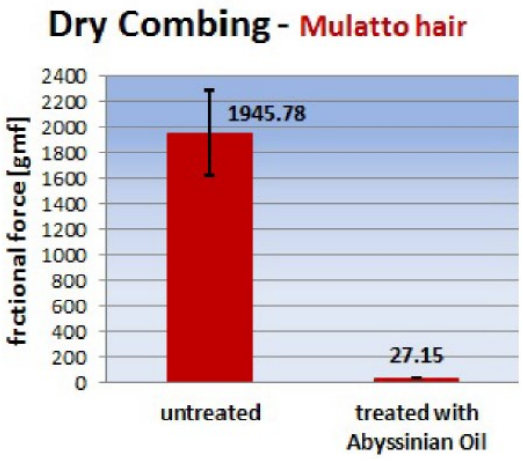
Hair Manageability

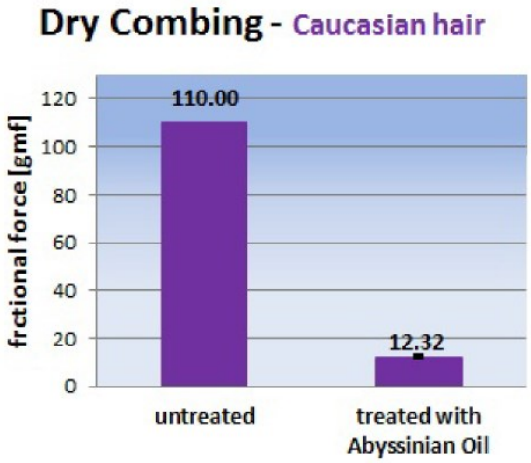
Most conditioning products claim to increase the manageability and combability of the hair due to lubrication and conditioning effect of the hair fibers. Improving the combability of the hair is perceived as the hair being in better condition. Better combability decreases the mechanical damage on the hair due to reduced combability force needed to untangle the hair, therefore, the combability of hair after treatment with conditioning agents provides an indicator if the effectiveness of the treatment is sufficient.

To comb untreated Mulatto hair it is necessary to use almost 2000 gmf frictional force due to its kinky structure. FANCOR® Abyssinian Oil effectively increased the combability by reducing the needed force down to 1.5 % of the force initially needed for untreated Mulatto Hair.

Single bleached Caucasian Hair, not treated with FANCOR® Abyssinian Oil, offers an average of needed frictional force for combing between 100 - 120 gmf declared by TRI Princeton based on historical data. Compared to this data TRI Princeton treated Caucasian Hair with FANCOR® Abyssinian Oil was able to reduce the needed force down to 12 gmf, a reduction of 88 %.

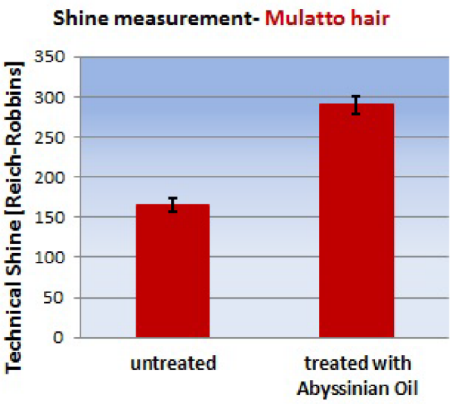
Treatment of both Mulatto and Caucasian Hair with FANCOR® Abyssinian Oil has a significant positive effect for conditioning and a better manageability of the hair.

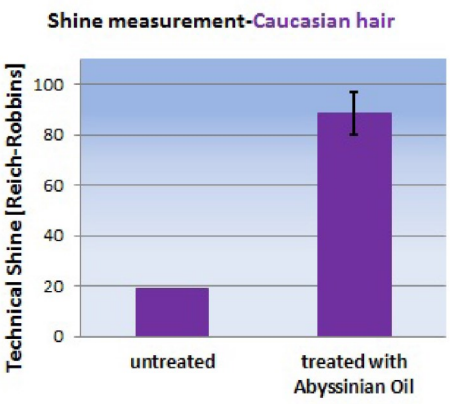




Hair Shine

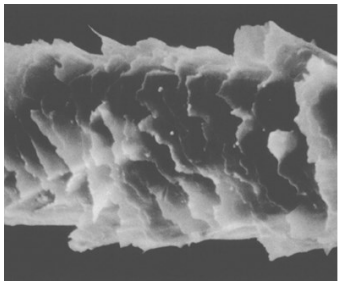
The shine of the hair is a very highly appreciated attribute of healthy-looking hair and is often a claim of hair care products. FANCOR® Abyssinian Oil is a natural shine enhancer. It can be used as a natural replacement to synthetic oils like silicones in Hair Care products where shine and luster is needed. Shine can be quantified by the intensity of light reflected from a curved hair surface. A narrow distribution of light reflection indicates a higher intensity of shine. The SAMBA device by Bossa Nova was used to quantify the shine enhancement.



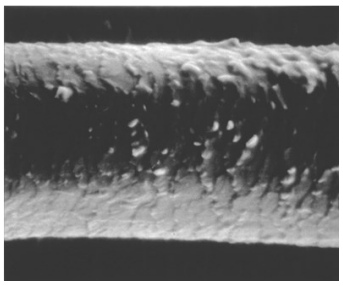


Hair Repair and Reconstruction

FANCORSIL® LIM facilitates the repair of the hair fiber's outer surface to achieve natural realignment of the cuticular plates. When treated with a solution of 5% FANCORSIL® LIM –1, cuticle repair is clearly evident.

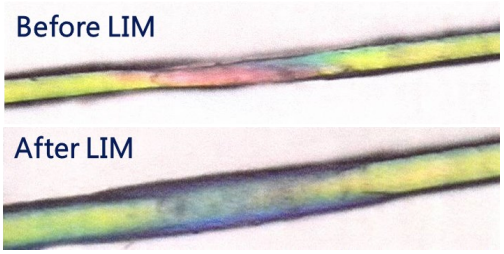


Control: damaged hair fiber

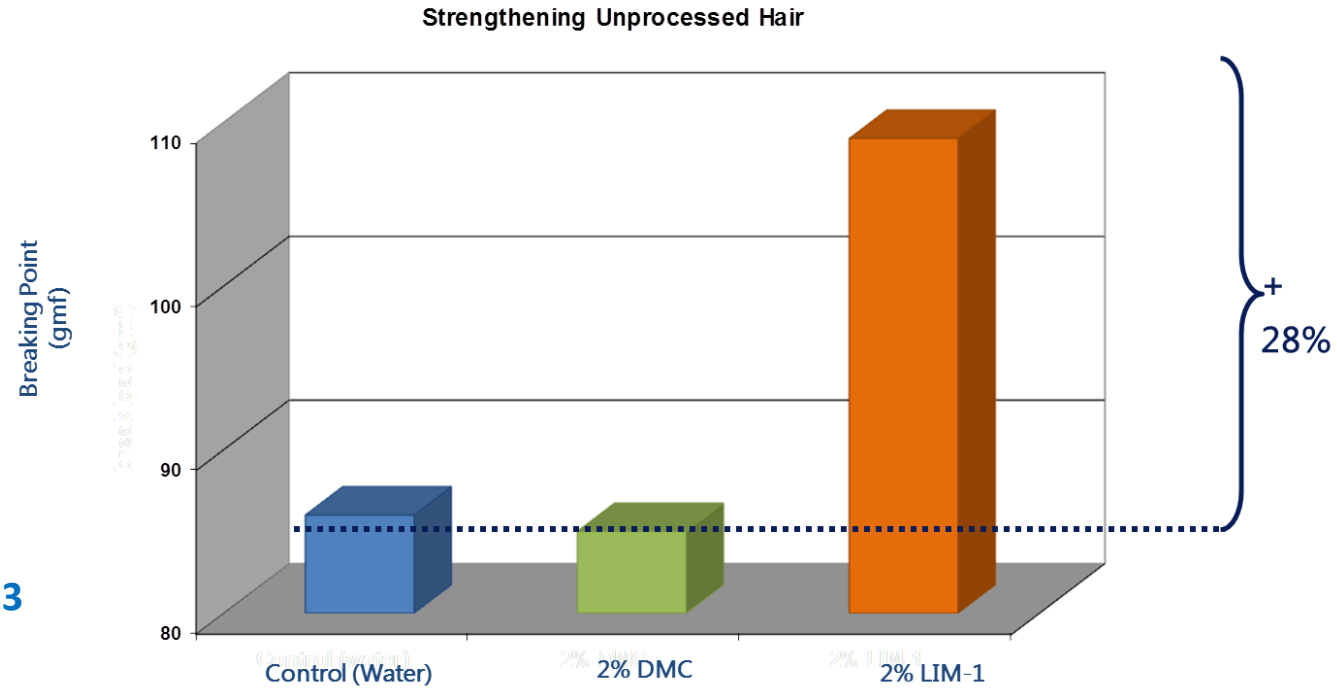


Test: damaged hair fiber treated with LIM-1

FANCORSIL® LIM has also been shown to realign the internal hair structure.



Because of it's ability to penetrate the hair fiber, LIM is capable of improving hair strength. The effect was measured in all types of hair treatments including shampoos, conditioning treatments, hair relaxers and hair color. In each case, the addition of FANCORSIL® LIM improved the strength of the hair fiber, significantly increasing the force needed to break the hair. When compared to Dimethicone Copolyol (DMC), the strength of unprocessed hair was improved by 28%.



Prevention of Damage

When applied to hair at a level as low as 1%, MEADOWQUAT® HG-70 prevents damage and repairs damaged hair. With its long-chain fatty acids and unique diamido configuration, MEADOWQUAT® HG-70 has the ability to repair hair that has been severely damaged by extreme heat and harsh chemicals. The operative factors responsible for this product's superior conditioning abilities are the unsaturated fatty acids that form the backbone of this material.

Virgin brown hair tresses were subject to heat damage by passing a pressing comb over each tress 80 times at 110°C. Tresses were treated with a solution of 1% MEADOWQUAT® HG-70 and blotted dry before the hot comb treatment. In the photos below, it can be seen that the hair treated with MEADOWQUAT® HG-70 prevents damage.

Improved Hair Color Durability

MEADOWQUAT® HG-70, a mild diamido-lipid-rich quaternium nitrogen ingredient for personal care products, is very effective not only in the conditioning process but also in its ability to sustain hair color and prevent wash-out. MEADOWQUAT® HG-70 is derived from a natural source and is functionally substantive, biodegradable, and stable in hydrogen peroxide (hair color developers) and sodium hydroxide (relaxers). When incorporated into hair color at a level of 2% to 3%, MEADOWQUAT® HG-70 enhances color intensity and significantly improves durability.

Hair color durability after 20 washings

Color Care Shampoo

H-1008-01

A	Deionized Water	Water	55.55
	Dissolvine Na2 (Akzo Nobel)	Disodium EDTA	0.10
	Panthenol		0.10
B	Standapol ES-2 (BASF)	Sodium Laureth Sulfate	23.00
	Tegobetaine F50 (Evonik)	Cocamidopropyl Betaine	7.50
	Plantacare 818 (BASF)	Coco-Glucoside	5.00
	Ninol M10 (Stepan)	Cocamide MIPA	1.50
	FANCORSIL® LIM-1 (Elementis Specialties)	Dimethicone PEG-8 Meadowfoamate	2.00
	Crothix (Croda)	PEG-150 Pentaerythrityl Tetrastearate	1.00
	Euperlan PK4000 (BASF)	Glycol Distearate (and) Laureth-4 (and) Cocamidopropyl Betaine	2.00
C	MEADOWQUAT® HG-70 (Elementis Specialties)	PEG-2 Dimeadowfoamamidoethylmonium Methosulfate	2.00
D	Troycare BC04 (Troy Corp)	Methylchloroisothiazolinone (and) Methylisothiazolinone	0.05

Procedure:

1. Combine phase “A” ingredients and heat to 80°C with propeller mixing.
2. Add phase “B” ingredients to to phase “A” one at a timewith propeller mixing.
3. Cool to 40°C with mixing.
4. Add phase “C” to batch
5. Add phase D to batch and cool to ambient temperature

Viscosity: RV #5 @ 50rpm 3,000—5,000cps
pH: 4.8—5.2

Nourishing Hair Oil

H-1004-01

A	FANCOL® ID-CG (Elementis Specialties)	Isododecane	84.80
	FANCORSIL® A (Elementis Specialties)	Cyclomethicone (and) Dimethicone	10.00
	Anti-Aging Hair Complex (Elementis Specialties)	Crambe Abyssinica Seed Oil (and) Hydrogenated Polyisobutene (and) PEG-2 Dimeadowfoamamidoethylmonium Methosulfate (and) Oleas Europaea (Olive) Oil Unsaponifiables	4.00
	Neo Heliopan AV (Symrise)	Ethylhexyl Methoxycinnimate	1.00

Procedure:

1. Combine phase “A” ingredients and mix well after each addition
2. Package as desired.

Color Care Daily Conditioner — H-1007-01

A	Deionized Water	Water	83.90
	Butylene Glycol		2.50
	Spectrastat (Inolex)	Caprylyl Glycol (and) Caprylhydroxamic Acid (and) Glycerin	0.90
	Calcium Pantothenate (BASF)		0.20
B	Incroquat Behenyl TMS PA (Croda)	Cetearyl Alcohol (and) Behentrimonium Methosulfate	5.00
	FANCOR® Abyssinian Oil (Elementis Specialties)	Crambe Abyssinica Seed Oil	1.00
	Isopropyl Palmitate		1.00
	Cetearyl Alcohol (Croda)		1.50
	FANCORSIL® LIM-2 (Elementis Specialties)	Dimethicone Meadowfoamate	1.00
	Xiameter-0245 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	2.00
C	MEADOWQUAT® HG-70 (Elementis Specialties)	PEG-2 Dimeadowfoamamidoethylmonium Methosulfate	1.00

Procedure:

1. Combine phase “A” ingredients and heat to 80°C with propeller mixing.
2. Heat phase “B” to 80°C and add to phase “A” with propeller mixing.
3. Cool to 45°C with mixing.
4. Add phase “C” to batch.
5. Cool to 30°C. Package as desired.

Viscosity: RV T-D @ 20 rpm 10,500—12,500cps
pH: 5.8—6.2

Hair Glossing Serum — H-1003-01

A	FANCORSIL® A (Elementis Specialties)	Cyclomethicone (and) Dimethicone	57.00
	Silsoft 034 (Momentive Silicones)	Caprylyl Methicone	17.00
	FANCOR® Abyssinian Oil (Elementis Specialties)	Crambe Abyssinica Seed Oil	2.00
	Xiameter-0245 Fluid (Dow Corning)	Cyclopentasiloxane (and) Cyclohexasiloxane	23.00
	Neo Heliopan AV (Symrise)	Ethylhexyl Methoxycinnimate	1.00

Procedure:

1. Combine phase “A” ingredients and mix well after each addition.
2. Package as desired.

ANTI-AGING CONDITIONER H-1002-01

A	Deionized Water	Water	85.50
	Kerabase (Inolex)	Brassica Alcohol (and) Brassicamidopropyl Dimethylamine (and) Polyester-11 (and) Aspartic Acid (and) EDTA	8.00
	Panthenol (BASF)		0.50
B	FANCOL ®POLYISO ®250-CG (Elementis Specialties)	Hydrogenated Polyisobutene	2.00
	Anti-Aging Hair Complex (Elementis Specialties)	Crambe Abyssinica Seed Oil (and) Hydrogenated Polyisobutene (and) PEG-2 Dimeadowfoamamidoethylmonium Methosulfate (and) Oleas Europaea (Olive) Oil Unsaponifiables	2.00
C	Spectrastat (Inolex)	Caprylhydroxamic Acid (and) Caprylyl Glycol (and) Glycerin	1.00
	FANCORSIL® LIM-2	Dimethiconol Meadowfoamate	1.00

Procedure:

1. Combine phase "A" ingredients and mix with moderate speed propeller mixing. Heat to 80-85°C and hold for 10-15 minutes with mixing. Keep vessel covered.
2. Combine phase "B" and add to phase "A" with propeller mixing.
3. Begin cooling.
4. At 60°C, add phase "C" ingredients to batch.
5. Cool to 30°C with moderate speed propeller mixing.

LEAVE-IN CONDITIONER WITH HEAT PROTECTION H-1006-01

A	Deionized Water	Water	91.50
	Varisoft BT-85 (Evonik)	Behentrimonium Chloride	1.50
	Cetearyl Alcohol (Croda)		3.00
	Propylene Glycol		1.00
	FANCOR® Abyssinian Oil (Elementis Specialties)	Crambe Abyssinica Seed Oil	0.50
	FANCORSIL® LIM-1	Dimehticone PEG-8 Meadowfoamate	1.00
	Panthenol (BASF)		0.10
B	Troycare BD55 (Troy Corp)	DMDM Hydantoin	0.30
	Troycare FL10 (Troy Corp)	Iodoopropynyl Butylcarbamate	0.10

Procedure:

1. Combine phase "A" ingredients and heat to 80°C with propeller mixing.
2. Cool to 40°C with continued mixing.
3. Add phase B to phase "A" with moderate speed propeller mixing,.
4. Cool to ambient Temperature.

Viscosity: RV #3 @ 20rpm 1,000—1,500cps
pH: 4.3—4.7

Restorative Hair Mask

H-1005-01

A	Deionized Water	Water	82.15
	Calcium Pantothenate (BASF)		0.20
	Glycerin		2.00
	Varisoft BT85 (Evonik)	Behentrimonium Chloride	2.25
B	Incroquat Behenyl TMS PA (Croda)	Cetearyl Alcohol (and) Behentrimonium Methosulfate	3.00
	Polawax NF (Croda)	Cetearyl Alcohol (and) Polysorbate 60	1.00
	Anti-Aging Hair Complex (Elementis Specialties)	Crambe Abyssinica Seed Oil (and) Hydrogenated Polyisobutene (and) PEG-2 Dimeadowfoamamidoethylmonium Methosulfate (and) Oleas Europaea (Olive) Oil Unsaponifiables	3.00
	Cetearyl Alcohol (Croda)		2.00
	Botanisil DM-90 (Botanigenics)	Dimethicone	1.00
	FANCORSIL® LIM-2 (Elementis Specialties)	Dimethiconol Meadowfoamate	1.00
	Silsoft 034 (Momentive Silicones)	Caprylyl Methicone	2.00
C	Troycare BD55 (Troy Corp)	DMDM Hydantoin	0.30
	Troycare FL10 (Troy Corp)	Iodoopropynyl Butylcarbamate	0.10

Procedure:

1. Combine phase “A” ingredients and heat to 80°C with propeller mixing.
2. Heat phase “B” to 80°C and add to phase “A” with propeller mixing.
3. Cool to 45°C with mixing.
4. Add phase “C” to batch.
5. Cool to 30°C. Package as desired.

Viscosity: RV T-E @ 20 rpm 50,000—60,000cps
pH: 4.6—5.0

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