

# Introducing BENTONE® ULTIMATE series

Ultimate efficiency for enhanced formulation flexibility

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Clay based rheology modifiers provide many benefits to cosmetic formulations

## BENTONE ULTIMATE AT A GLANCE



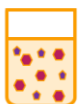
- High efficiency through optimised clay content



- Effective viscosity build and texture variability



- Improves formula stability & thermostable viscosity control



- Enhanced suspension of pigments, particles & actives



- Easy and even application due to thixotropic flow



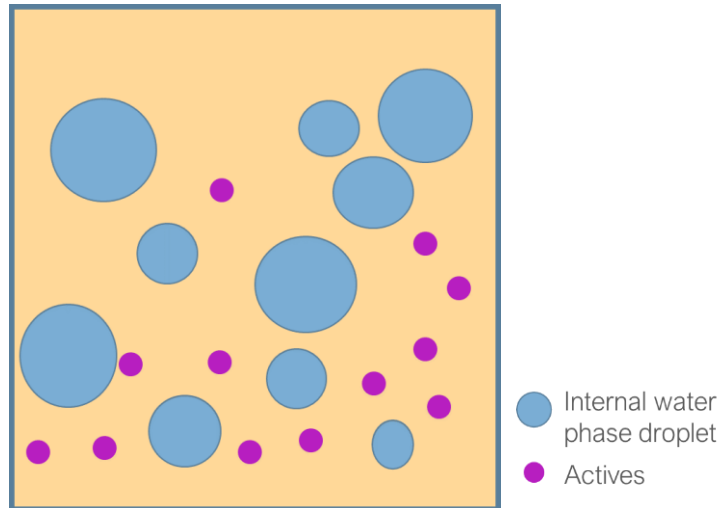
- High natural index with natural solvents
- Mild activation - a fully naturally-derived skin conditioning agent

## NATURAL ACTIVATION SYSTEM

- Gentle activation – Glyceryl Oleate provides a solution to sensitive skin concerns
- Natural skin conditioning
- Instant hydration and moisture retention in the skin
- Enables high clay loads for utmost formulation flexibility

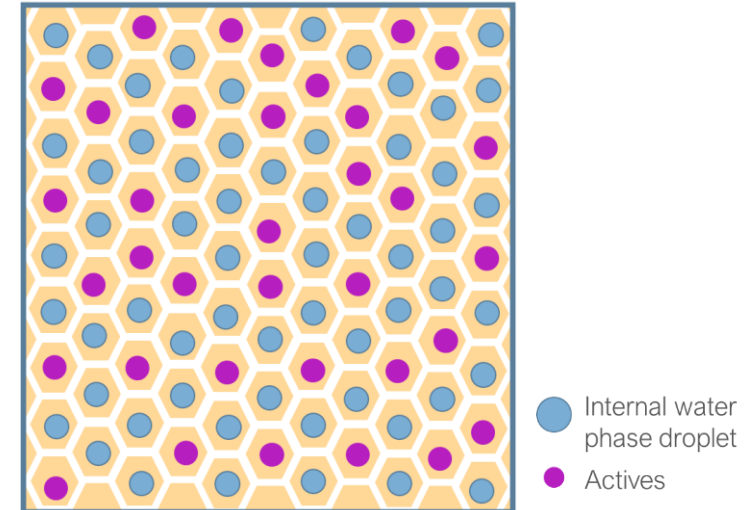
# Mechanism of action

## NO BENTONE®



- Without BENTONE® irregular shaped water droplets are dispersed unevenly through the water in oil emulsion.
- Actives can be found at different concentrations in different parts of the emulsion

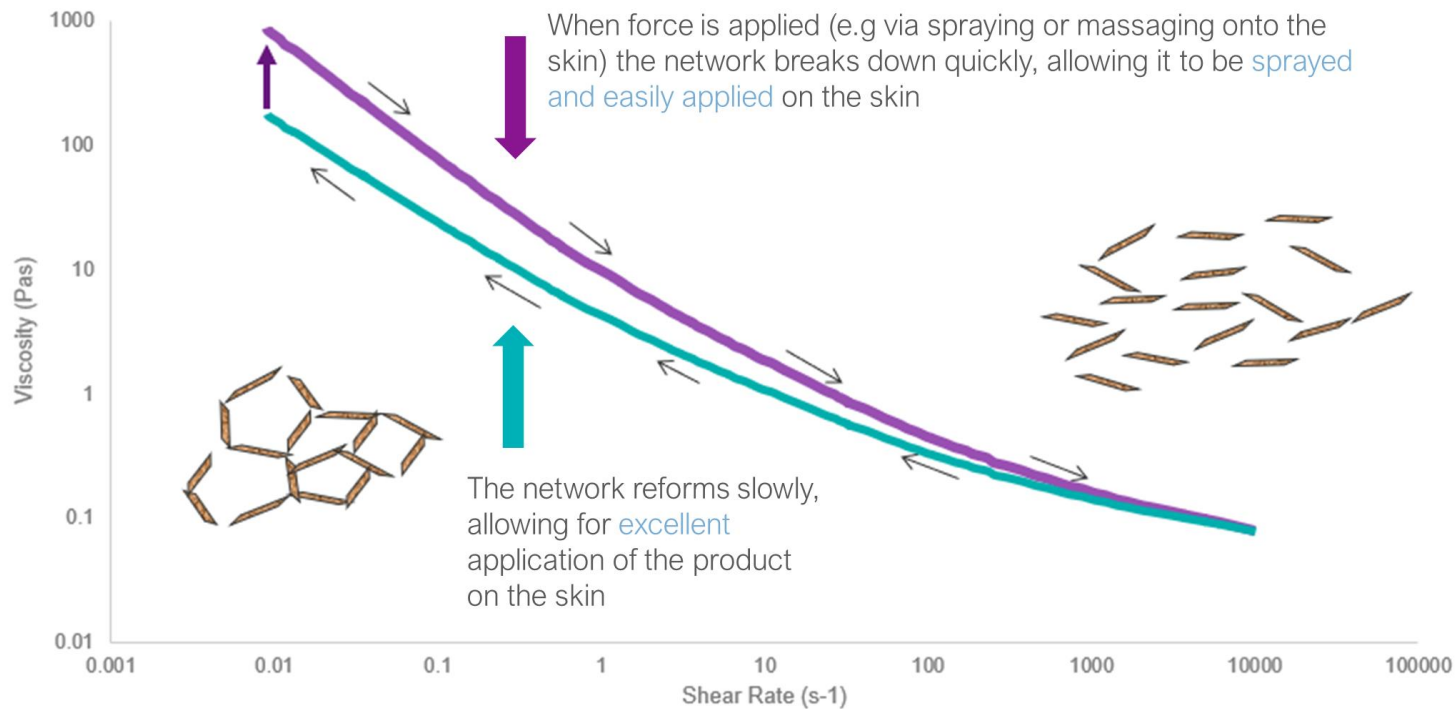
## WITH BENTONE® ULTIMATE



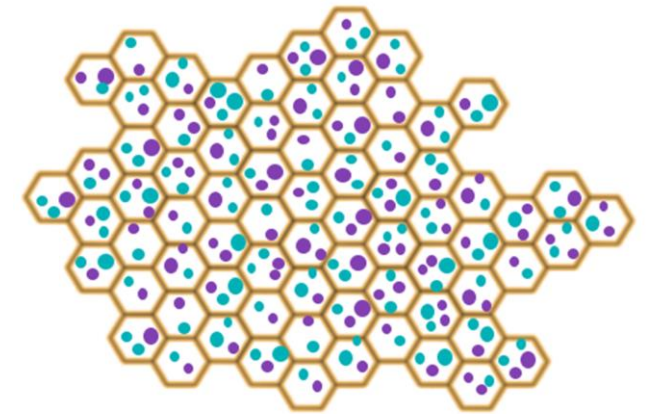
- **BENTONE®** creates a physical network throughout the external oil phase of the emulsion, while also having some affinity with the water phase, helping to give structure for suspension and homogeneous dispersion of actives and enhancing emulsion stability (pickering emulsifying)..
- Internal water phase droplets are smaller, more evenly dispersed with a tighter packing, giving a better-quality emulsion

# Rheology of BENTONE<sup>®</sup> ULTIMATE

## Thixotropic Flow and suspending network



- Actives, powders and pigments can be **suspended** within the **BENTONE<sup>®</sup> ULTIMATE** network resulting in an **even application** on the skin.



# BENTONE® ULTIMATE series

Ultimate efficiency for enhanced formulation flexibility

## BENEFITS

- Patent-pending technology
- Enhanced formulation flexibility
  - High clay loading for increased formulation versatility
  - Suggested use level of 1 – 10 %
- Convenience
  - Easy dosage
  - Easy storage
  - Batch-to-batch consistency
- Enhanced suspension of pigments, particles & actives
- Mild activation: a fully naturally-derived skin conditioning agent



Unique chemistry, sustainable solutions

## APPLICATIONS:

- Colour Cosmetics
- Lipsticks
- Face and Body Care
- Sun Care products
- Antiperspirants

## INCI:

### BENTONE® ULTIMATE ISD

Isododecane (and) Disteardimonium Hectorite (and) Glyceryl Oleate

### BENTONE® ULTIMATE LC

C9-12 Alkane (and) Disteardimonium Hectorite (and) Glyceryl Oleate



VEGAN



SUSTAINABLE  
PALM



COLD PROCESS



CHINA CONFORM



# Incorporation method

# Incorporation method



1. Incorporate BENTONE® ULTIMATE, under high shear, to a portion of the solvent of the formulation with which it is most compatible to ensure proper dispersion.
2. Once this mixture is homogenous, and no lumps are present, the rest of the ingredients can be added.



Enhanced formulation flexibility and stability



# Functional performance attributes

BENTONE® ULTIMATE creates a variety of textures

From flowable liquid drops to creams to sticks, **BENTONE® ULTIMATE** can help create formulations with ingredients featuring skin moisturisation benefits, which often give a burst of freshness and hydration when applied to the skin.



Shimmering Body & Hair Oil



Bare Canvas Face Base



Skin Tint Serum



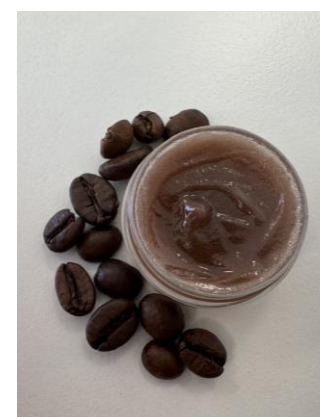
Fresh Purple Eyeshadow



Baby Lotion



Sunkissed Lip Balm



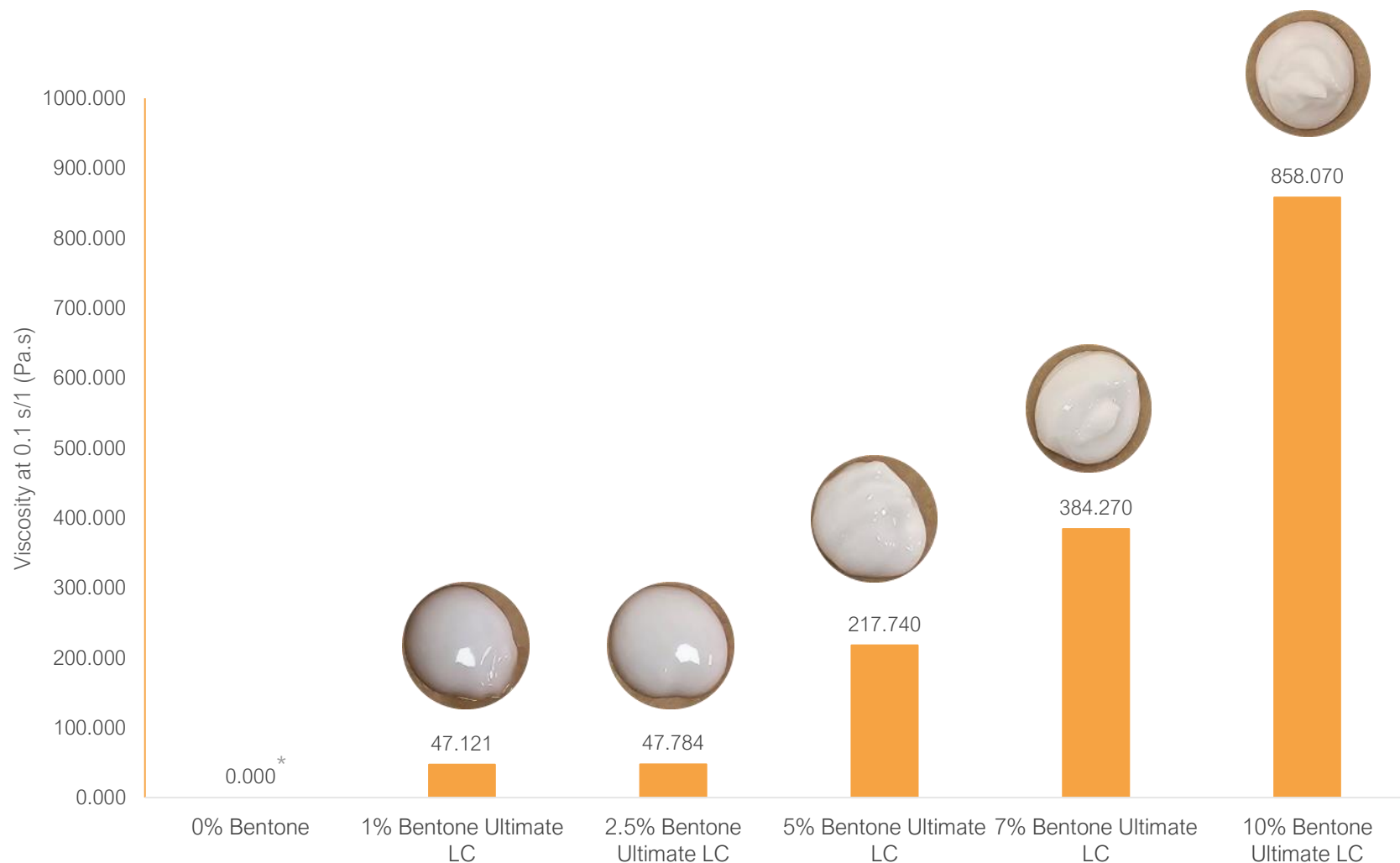
Glazed Glam Balm



Gelled Oil Sunscreen

# Viscosity vs concentration

Changes in texture at different use levels



\* Not measured (not stable)

Unique chemistry, sustainable solutions

- BENTONE® ULTIMATE offers high clay loading with a lower use level.
- By varying the concentration of BENTONE® ULTIMATE, the formulation changes its texture from a lotion to a rich butter.
- A use level of 1 - 10% is recommended.

# Enhanced formulation stability

Stability test of a W/O emulsion with and without BENTONE ULTIMATE LC after 2 weeks at 50°C



0%  
BENTONE  
ULTIMATE  
® LC

1%  
BENTONE  
ULTIMATE  
® LC

2.5%  
BENTONE  
ULTIMATE  
® LC

5%  
BENTONE  
ULTIMATE  
® LC

7%  
BENTONE  
ULTIMATE  
® LC

- A stability test is conducted with a W/O emulsion with and without BENTONE® ULTIMATE LC at 50°C for two weeks.
- The formulation without BENTONE breaks down after two weeks at a high temperature; while the formulas with BENTONE® ULTIMATE LC are stable after two weeks.
- The addition of BENTONE® ULTIMATE LC at a low concentration such as 1%, can improve stability.

# Enhanced formulation texture and stability

## BENTONE® ULTIMATE ISD vs. no hectorite

### ENHANCED FORMULATION TEXTURE

Phase	Ingredient	w/w%
A	Cetiol CC (Dicaprylyl Carbonate)	6.00
	Isododecane	Q.S.
	<b>BENTONE® ULTIMATE ISD / No Clay</b>	<b>5.00 / 0</b>
	Dehymuls PGPH (Polyglyceryl-2 Dipolyhydroxystearate)	3.00
	Polyglyceryl-3 Diisostearate	2.00
B	D.I. Water	70.00
	Propanediol	2.00
	Sodium Chloride	1.00
	Euxyl PE9010 (Phenoxyethanol (and) Ethylhexylglycerin)	1.00



BENTONE® ULTIMATE gives more body and structure to the formula compared with the control without clay

Face base comparison with 5% BENTONE® ULTIMATE (left) vs control with no clay (right)

### ENHANCED FORMULATION STABILITY



Face base stability comparison with 5% BENTONE® ULTIMATE (left) vs control with no clay (right) at a high temperature of 50°C.

The control (right) shows a phase separation at 50°C after 1 month, but the formula with BENTONE® ULTIMATE (left) remains stable.



A top-down view of various cosmetic products and tools arranged on a light beige surface. The items include several small round pots of powder in different shades (white, gold, pink, and beige), a large round pot of beige powder at the bottom, a rectangular tube of dark liquid product, a small vial of gold glitter, two makeup brushes with black handles and gold ferrules, a pair of gold lace earrings, and numerous small white and pink pearls. A gold checkered patterned bag is partially visible in the bottom right corner.

ELEMENTIS

Excellent suspension properties

# Suspension capacity

BENTONE® ULTIMATE shows excellent suspension capacity at just 5% use level



0%  
BENTONE  
ULTIMATE® LC

10%  
BENTONE  
ULTIMATE®  
LC

5%  
BENTONE  
ULTIMATE® LC

2.5%  
BENTONE  
ULTIMATE® LC

5% BENTONE ULTIMATE® LC was able to fully suspend the glitter, in a similar way to 10% BENTONE ULTIMATE® LC.

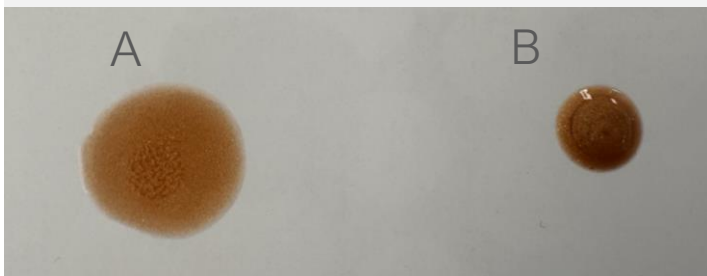
# Improved stability and suspension properties

## Shimmering body and hair oil

The base of this formula is with BENTONE® ULTIMATE ISD on a high isododecane concentration oil mixture, which is a challenge-to-thicken system.

The suspension test demonstrated that BENTONE® ULTIMATE ISD:

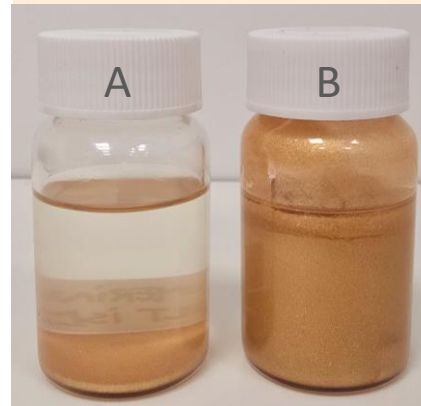
- Provides stable pigment suspension
- Prevents “caking”
- Imparts an elegant and dry, non-oily skin feel
- Provides structure in a fully fluid system



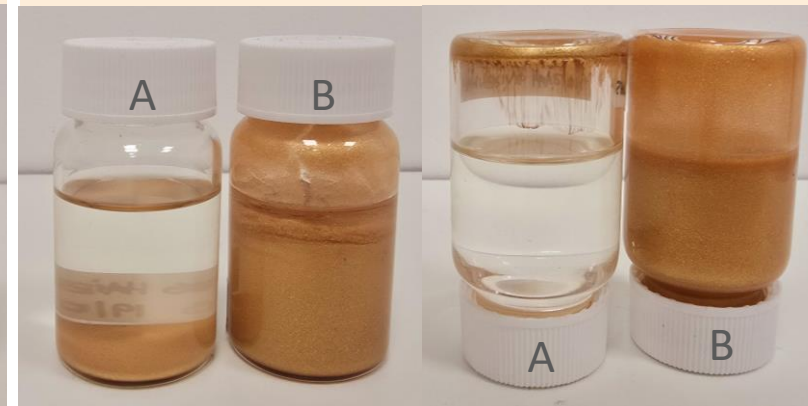
Start (T0, immediately after shaking)



After 24 hours



After 1 week



A – Shimmering Body & Hair Oil without BENTONE® ULTIMATE ISD  
B – Shimmering Body & Hair Oil with BENTONE® ULTIMATE ISD



ELEMENTIS

Even application





# Even application

BENTONE® ULTIMATE allows even application and great pigment dispersion

With BENTONE®  
ULTIMATE LC



Without  
BENTONE®



- The skin tint serum with and without BENTONE® ULTIMATE is applied on white Leneta with a 200µm film applicator.
- The serum with BENTONE® ULTIMATE LC (top) shows a much more even application and pigment dispersion compared to the one without BENTONE® (bottom).

# Formulations



# Bare Canvas Face Base

Featuring BENTONE® ULTIMATE ISD

F-1013-01

Phase	Ingredient	Supplier	%w/w
A	Isododecane		10.00
	Dicaprylyl Carbonate (Cetiol® CC)	BASF	6.00
	Isododecane (and) Disteardimonium Hectorite (and) Glyceryl Oleate ( <b>BENTONE® ULTIMATE ISD</b> )	Elementis	5.00
	Polyglyceryl-2 Dipolyhydroxystearate (Dehymuls® PGPH)	BASF	3.00
	Polyglyceryl-3 Diisostearate		2.00
B	D.I. Water		70.00
	Propanediol		2.00
	Sodium Chloride		1.00
	Phenoxyethanol and Ethylhexylglycerin (euxyl™ PE9010)	Ashland	1.00

## BENEFITS

This light lotion delivers moisture with a quick-dry yet comfortable feel, acting as the perfect base for makeup application.

### BENTONE® ULTIMATE ISD

- provides a light application while enhancing the stability and spreadability of the emulsion.



# Fresh Purple Cream Eyeshadow

Featuring BENTONE® ULTIMATE ISD

C-1049-01

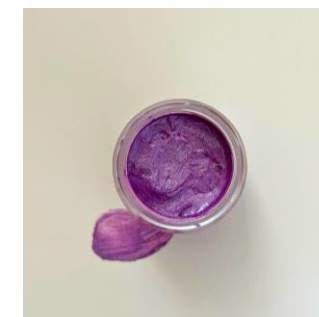
Phase	Ingredient	Supplier	%w/w
A	Isododecane		17.50
	Isododecane (and) Distearidmonium Hectorite (and) Glyceryl Oleate ( <b>BENTONE® ULTIMATE ISD</b> )	<b>Elementis</b>	7.00
B	Silica (Harmonie™ Luxe-4)	Momentive	10.00
	<b>Hydrogenated Polyisobutene (FANCOL® POLYISO® 450-CG)</b>	<b>Elementis</b>	2.50
	Tribehenin (Pelemol® GTB)	Phoenix Chemical, Inc.	5.00
	White Beeswax Pastilles (N.F. SP-422P)	Strahl & Pitsch LLC	2.50
C	Isododecane (and) Trimethylsiloxylsilicate/Dimethiconol Crosspolymer (DOWSIL™ FC-5002 IDD Resin Gum)	Dow	20.00
	Mica (and) Titanium Dioxide (Flamenco® Super Pearl)	Sun Chemical	5.00
	Manganese Violet (SunCROMA®)	Sun Chemical	10.00
	Mica (KOBOMICA S-25)	Kobo	15.00
	Calcium Sodium Borosilicate (and) Silica (and) Titanium Dioxide (Reflecks™ MultiDimensions Transforming Sapphire)	Sun Chemical	5.00
E	Dehydroacetic Acid (and) Benzyl Alcohol	Making Cosmetics	0.50

## BENEFITS

This cream eyeshadow is a smudge proof formula that highlights the eyes with a metallic purple pigment.

### BENTONE® ULTIMATE ISD

- forms a strong network to give superior stability and suspension for pigments and powders.
- High clay load Bentone gel allows the use of a smaller amount of clay gel, increasing formula flexibility and improving **color pay-off**.





# Sunkissed Lip Balm

Featuring BENTONE® ULTIMATE LC

C-1053-01

Phase	Ingredient	Supplier	%w/w
A	Diisostearyl Malate (Bernel Ester DISM)	Alzo International	39.20
	C9-12 Alkane (and) Distearidimonium Hectorite (and) Glyceryl Oleate (BENTONE® ULTIMATE LC)	Elementis	7.00
	C9-12 Alkane (Jeechem® NDA LC)	Vantage Specialty Chemicals	4.20
	Shorea Robusta Resin (and) Octyldodecanol (KahlResin 6723)	Kahl	1.00
	Phenoxyethanol (and) Ethylhexylglycerin (euxyl™ pe9010)	Ashland	0.50
B	Euphorbia Cerifera (Candelilla) Wax (Candelilla Wax SP-75)	Strahl & Pitsch	7.00
	Copernica Cerifera (Carnauba) Wax (Carnauba Wax SP-63)	Strahl & Pitsch	5.00
	Cera Alba (White Beeswax, NF SP-422)	Strahl & Pitsch	4.00
C	Homosalate (Neo Heliopan® HMS)	Symrise	10.00
	Ethylhexyl Salicylate (Neo Heliopan® OS/BP)	Symrise	5.00
	Butyl Methoxydibenzoylmethane (Neo Heliopan® 357)	Symrise	3.00
D	Diisostearyl Malate (Bernel Ester DISM)	Alzo International	9.80
	Red 27 Lake		1.45
	Mica (and) Titanium Dioxide (KTZ® Fine White)	Kobo Products, Inc.	1.00
	Synthetic Fluorophlogopite (and) Titanium Dioxide (and) Iron Oxides (and) Silica (Chione™ Electric Fuchsia)	Sun Chemical	1.00
	Blue 1 Lake		0.05
E	Tocopherol		0.50
	Vanilla Mint Sweetener		0.30

## BENEFITS

This shiny lip balm nourishes and protects the lips with a predicted SPF 30 while delivering high payout.

### BENTONE® ULTIMATE LC

- improves stick stability and provides suspension of both pigments and sunscreen filters.



# Glazed Glam Balm

Featuring BENTONE® ULTIMATE LC

C-2056-02

Phase	Ingredient	Supplier	%w/w
A	Ricinus Communis Seed Oil (Castor Oil)		68.90
	Hydrogenated Polyisobutene ( <b>FANCOL® POLYISO® 300-CG</b> )	Elementis	13.00
	Meadowfoam Estolide ( <b>MEADOWESTOLIDE®</b> )	Elementis	2.00
	Tocopherol (and) Helianthus Annus Seed Oil (dermofeel® Toco 70 non-GMO)	Evonik	1.00
	C9-12 Alkane (and) Distearidimonium Hectorite (and) Glyceryl Oleate ( <b>BENTONE® ULTIMATE LC</b> )	Elementis	5.00
	Phenoxyethanol (and) Ethylhexylglycerin (euxyl™ pe 9010)	Ashland	0.50
	Coffee Fragrance (Parfum)		0.50
B	Mica (and) CI 77491 (Iron Oxides) (and) CI 77499 (Iron Oxides) (and) CI 77891 (Titanium Dioxide) (Cloisonné® Nu-Antique Bronze 240XB)	Sun Chemical	0.10
	Trihydroxystearin ( <b>THIXCIN® R PC</b> )	Elementis	5.00
	Cera Alba (KahlWax 8104 White Beeswax)	Kahl	2.00
	Copernicia Cerifera Cera (KahlWax 2442 Carnauba)	Kahl	1.00
	Euphorbia Cerifera Cera (KahlWax 2039L Candelilla)	Kahl	1.00

## BENEFITS

This Ultimate 3-in-1 lip essential is a versatile beauty must-have that elevates any lip care routine. It can be used as a topper to achieve a dazzling, glossy finish, as a moisturiser for everyday wear and as a sleeping mask for an intense moisture.

### BENTONE® ULTIMATE LC

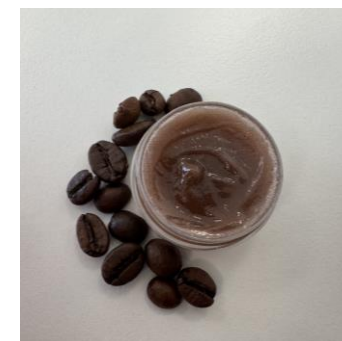
- provides stability, suspends pigments and enhances application.

### MEADOWESTOLIDE®

- provides lip moisturisation.

### THIXCIN® R PC

- provides body and texture allowing an easy and smooth application.



# Skin Tint Serum

Featuring BENTONE® ULTIMATE LC

C-2057-02

Phase	Ingredient	Supplier	w/w%
A	CI 77891 (Titanium Dioxide) (and) Hydrogenated Stearyl Olive Esters (MiyoNat OLV White)	Miyoshi	11.00
	CI 77492 (Iron Oxides) (and) Hydrogenated Stearyl Olive Esters (MiyoNat OLV Yellow)	Miyoshi	1.04
	CI 77491 (Iron Oxides) (and) Hydrogenated Stearyl Olive Esters (MiyoNat OLV Red)	Miyoshi	0.60
	CI 77499 (Iron Oxides) (and) Hydrogenated Stearyl Olive Esters (MiyoNat OLV Black)	Miyoshi	0.12
	Mica (KoboMica S-25)	Kobo	3.00
	Dicaprylyl Carbonate (Cetiol CC)	BASF	20.00
B	Limnanthes Alba (Meadowfoam) Seed Oil (FANCOR® MEADOWFOAM SEED OIL)	Elementis	29.74
	Limnanthes Alba (Meadowfoam) Seed Oil (and) Butyrospermum Parkii (Shea) Butter (FANCOL® VB)	Elementis	5.00
	Meadowfoam Estolide (MEADOWESTOLIDE®)	Elementis	3.00
	Ceramide NP		0.50
C	C9-12 Alkane (and) Distearidimonium Hectorite (and) Glyceryl Oleate (BENTONE® ULTIMATE LC)	Elementis	10.00
D	Silica		0.50
	Oryza Sativa Starch (Reisita Natural 9094)	Agrana	15.00
	Mica (and) CI 77891 (Titanium Dioxide) (Flamenco Satina 120T)	SunChemical	0.50

ELEMENTIS



98% natural  
origin content

## BENEFITS

This hybrid product combines the benefits of a serum containing moisturising active ingredients with a sheer coverage of a skin tint. Oil-based formula that provides a smooth application and a dry, matte finish.

### BENTONE® ULTIMATE LC

- helps to improve pigment suspension allowing a high naturality index.

### MEADOWESTOLIDE®

- provides increased hydration with a complementing ceramides functions.



# Shimmering Body & Hair Oil

Featuring BENTONE® ULTIMATE ISD

B-2045-02

Phase	Ingredient	Supplier	%w/w
A	Isododecane, Disteardimonium Hectorite, Glyceryl oleate (BENTONE® ULTIMATE ISD)	Elementis	14.00
	Isododecane (Purolan™ IDD)	Lanxess	38.00
	Caprylic/Capric Triglyceride (Bergabest MCT 60/40)	Berg+Schmidt	25.00
	Limnanthes Alba (Meadowfoam) Seed Oil (FANCOR® MEADOWFOAM SEED OIL)	Elementis	10.00
	Crambe Abyssinica Seed Oil (FANCOR® ABYSSINIAN OIL)	Elementis	10.00
	Phenoxyethanol (and) Ethylexylglycerin (Euxyl™ PE 9010)	Ashland	0.50
B	Synthetic Fluorphlogopite (and) Titanium Dioxide (CI 77891) (and) Iron Oxides (CI 77491) (SunSHINE® Super Glitter Golden C84-3710)	SunChemical	0.50
	Mica (and) Titanium Dioxide (CI 77891) (and) Iron Oxides (CI 77491) (Gemtone® Amber G001)	SunChemical	2.00

## BENEFITS

This luxurious blend not only nourishes and hydrates skin and hair but also adds a golden sparkle that catches the light. Perfect for every-day use, this oil gives a dry touch, non-greasy feel, leaves the skin nourished and hair silky smooth, radiant, and full of life.

## BENTONE® ULTIMATE ISD

- provides stability and great pigment suspension properties, preventing “caking”.



# Gelled Oil Sunscreen

Featuring BENTONE® ULTIMATE ISD and MEADOWESTOLIDE

S-2026-02

Phase	Ingredient	Supplier	%w/w
A	Isododecane	Lanxess	5.00
	Octocrylene (PARSOL® 340)	dsm-firmenich	10.00
	Homosalate (PARSOL® HMS)	dsm-firmenich	7.00
	Ethylhexyl Salicylate (PARSOL® EHS)	dsm-firmenich	5.00
	Butyl Methoxydibenzoylmethane (PARSOL® 1789)	dsm-firmenich	3.00
	Ethylhexyl Methoxycinnamate (Eusolex® 2292)	Merck	4.00
	Meadowfoam Estolide ( <b>MEADOWESTOLIDE®</b> )	Elementis	2.00
	Caprylic/Capric Triglyceride (Bergabest MCT 60/40)	Berg+Schmidt	2.00
	Dicaprylyl Carbonate (Cetiol® CC)	BASF	2.00
	Phenoxyethanol (and) Ethylhexylglycerin (Euxyl™ PE 9010)	Ashland	0.50
B	Isododecane (and) Distearidimonium Hectorite (and) Glyceryl Oleate ( <b>BENTONE® ULTIMATE ISD</b> )	Elementis	54.50
C	Oryza Sativa Starch (Reisita Natural 9094)	Agrana	5.00

## BENEFITS

An invisible, non-greasy oil-based sunscreen with a predicted SPF of 30. It hydrates and provides a unique sensory experience.

### BENTONE® ULTIMATE ISD

- helps to build the texture in systems with low viscosity and difficult to gel solvents, while providing even application and SPF boost. High concentration improves the oily and unpleasant skin feel imparted by organic UV filters and gives body to this challenge- to-thicken system.

### MEADOWESTOLIDE®

- is a natural derivative of Limnanthes Alba (Meadowfoam) Seed Oil and has been shown to improve the skin hydration.

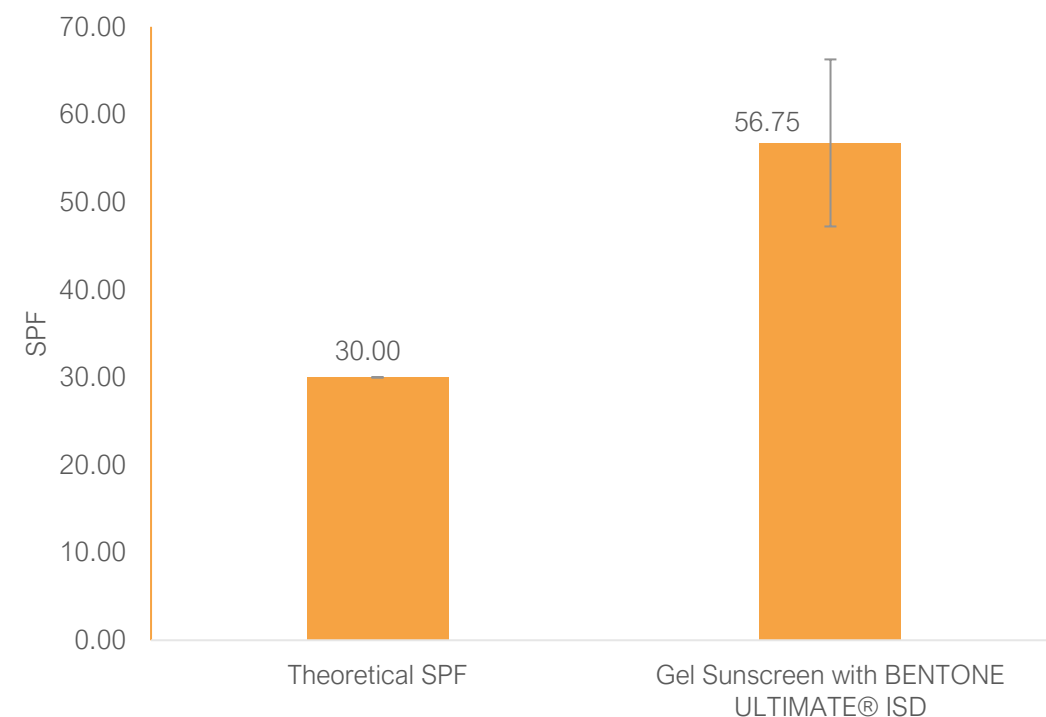


# SPF boost

Gel Sunscreen with BENTONE® ULTIMATE ISD shows increase in SPF

Phase	Raw Material	INCI	% w/w
A	PUROLAN® IDD (Lanxess)	Isododecane	5.00
	PARSOL® 340 (dsm-firmenich)	Octocrylene	10.00
	PARSOL® HMS (dsm-firmenich)	Homosalate	7.00
	PARSOL® EHS (dsm-firmenich)	Ethylhexyl Salicylate	5.00
	PARSOL® 1789 (dsm-firmenich)	Butyl Methoxydibenzoylmethane	3.00
	Eusolex® 2292 (Merck)	Ethylhexyl Methoxycinnamate	4.00
	MEADOWESTOLIDE® (Elementis)	Meadowfoam Estolide	2.00
	Bergabest MCT 60/40 (Berg+Schmidt)	Caprylic/capric Triglyceride	2.00
	Cetiol CC (BASF)	Dicaprylyl Carbonate	2.00
	Euxyl pe 9010 (Ashland)	Phenoxyethanol (and) Ethylhexylglycerin	0.50
B	BENTONE ULTIMATE® ISD (Elementis)	Isododecane (and) Distearidimonium Hectorite (and) Glyceryl Oleate	54.50
C	Reisita Natural 9094 (Agrana)	Oryza Sativa Starch	5.00

## IN-VITRO TEST WITH BENTONE® ULTIMATE ISD



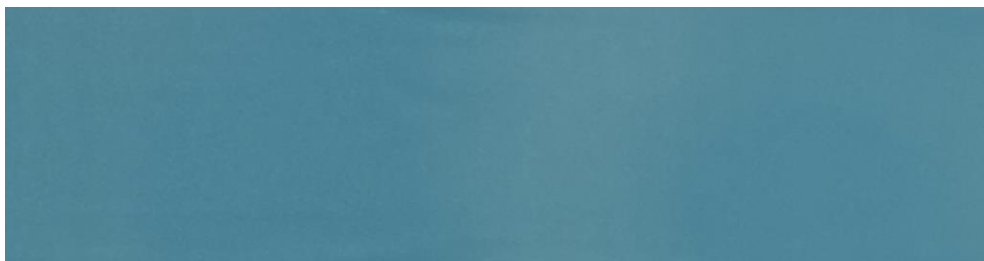
The use of BENTONE ULTIMATE® ISD increased the SPF value from a theoretical 30 to an *in-vitro* determined of 50.



# Even application

Gelled Oil Sunscreen S-2026-02 (with 0.5% FD&C BLUE 1 pigment\*)

With BENTONE® ULTIMATE ISD



Without BENTONE®



- 200µm Film applied on white Leneta

\*A pigment was added to the formulation to a better visual perception.

- BENTONE® ULTIMATE ISD allows a more even application and better coverage.

For more details  
please contact:

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Unique chemistry, sustainable solutions