



FORMULATION
FEATURES

A close-up, low-angle shot of a woman with dark, curly hair, smiling and looking upwards. Her face is glowing with a soft, golden light. Above her head, a glass dropper with a silver cap is shown, with a single drop of golden oil falling from it. The background is a warm, golden-brown gradient.

EstoLight-1E

A concentrate of innovation for your formulations



Enhanced protection



Natural Cosmetics



Optimized performance

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**What is EstoLight-1E and what
is it used for?**

ID card

- INCI: Methyl polyricinoleate
- CAS: 1009828-51-6
- Plant-based: Castor-derived, palm-free
- Regulatory: Exempt from REACH (polymer status)
- Natural Origin index (ISO 16128): > 0.99
- Appearance: Yellow/orange viscous liquid
- Odor: Light oil scent
- Solubility: Vegetable oils, butters, waxes, esters
- Oxidative stability NF ISO 6886: > 70 h

Usage

- Function: **Dispersant**
- Compatibility: **Direct and inverse emulsions, anhydrous formulas**
- Types of dispersed particles: **Mineral, organic, synthetic**
- Tested usage levels: **1 to 5%**
- Tested pigment loadings: **1 to 50%**



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**What are the benefits of
EstoLight-1E?**

Usage

- Liquid, does not crystallize, no preheating or melting required
- Ready to use
- Cold-process compatible
- Chemically neutral and compatible with cosmetic ingredients

Naturality

- Bio-based, Natural Origin Index >99%
- Biodegradable
- Non-toxic, non-ecotoxic

Efficiency

- Low percentage of use: 1-5% depending on the application
- Suitable for concentrated pigment bases, emulsions, or 100% anhydrous bases
- SPF boost vs conventional dispersant (PHS) in organic sunscreens

Sensoriality

- Ease of application
- Improves spreadability and even coverage on the skin
- Enhances penetration, non-greasy feeling



Examples of formulations made with EstoLight-1E

Pigment dispersion



Mineral sunscreen formulations



Organic sunscreen formulations



Foundation



Shimmering oil



Pigmented lotion

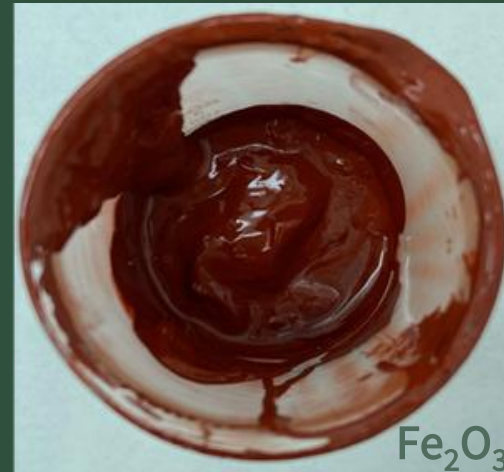
Pigment dispersion



Titanium oxide and iron oxide
paste

Objective

Compare dispersing properties of EstoLight-1E compared to PHS (polyhydroxystearic acid) in concentrated phase



With EstoLight-1E



With PHS

Composition & Operating mode

- 4.5% EstoLight-1E ; 50% pigment ; qsp caprylic/capric triglycerides
- Manual mixing with spatula then 3 passes through three-roll mill

Observations & Benefits

- Easy to manually disperse EstoLight-1E (No melting required)
- Similar appearance and stability to PHS

Mineral Sunscreen Formulation



Water-in-oil emulsion with
mineral filters (ZnO et TiO₂)

Mineral sunscreen formulations

PHASE	INCI	%
Phase A	Caprylic/Capric Triglyceride	10.65
	C15-19 Alkane	7.00
	Pongamia Glabra Seed Oil	4.00
	Polyglyceryl-3 Polyricinoleate, Polyglyceryl-4 Oleate	3.00
	Hydrogenated Castor Oil/Sebacic Acid Copolymer, Caprylic/Capric Triglyceride	0.75
	Helianthus Annuus Seed Oil, Tocopherol	0.25
	Titanium Dioxide, silica	10.00
	Zinc Oxide	7.50
Phase B	EstoLight-1E	1.30
	Aqua	54.15
	Potassium citrate	0.40
	Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin	1.00
		100.00

Formulation technology

- Emulsion type : Water-in-oil (W/O)
- Mineral Filters : 17.5% ZnO + TiO2
- Dispersant : EstoLight-1E (1.3%) vs PHS

Operating mode

- **Phase A:**
 - Heat at 85°C
 - Stir gently for 15 min
- **Phase B:**
 - Heat at 85°C
 - Emulsify in A under high shirring (15 min)



With EstoLight-1E

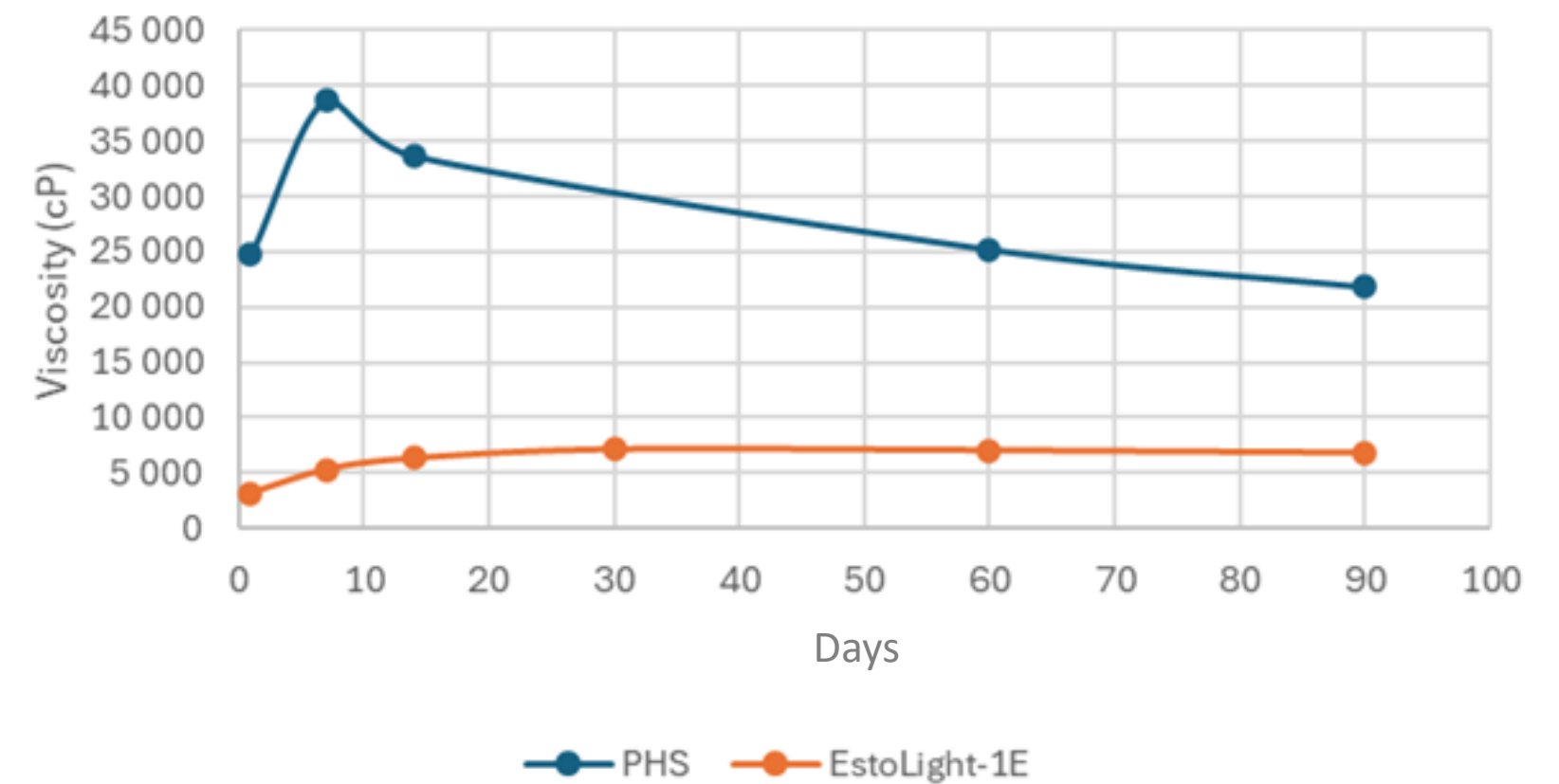


With PHS

Visual and sensory results

- Improve texture and greater fluidity with EstoLight-1E
- **Enhanced Homogeneity:** better pigment dispersion
- **Thermal stability:** no separation after 3 months at 40°C or 50°C
- **Comfort during application:**
 - Spreading facilitated
 - No white marks

Viscosity evolution at room temperature



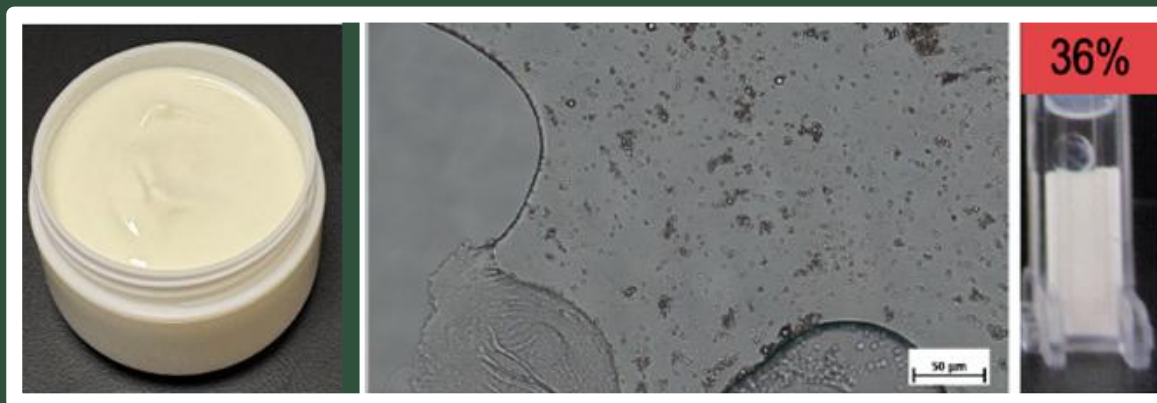
Physical stability

LUMiFuge test (2000xg / 25°C / 2h) – Accelerated aging test by centrifugation

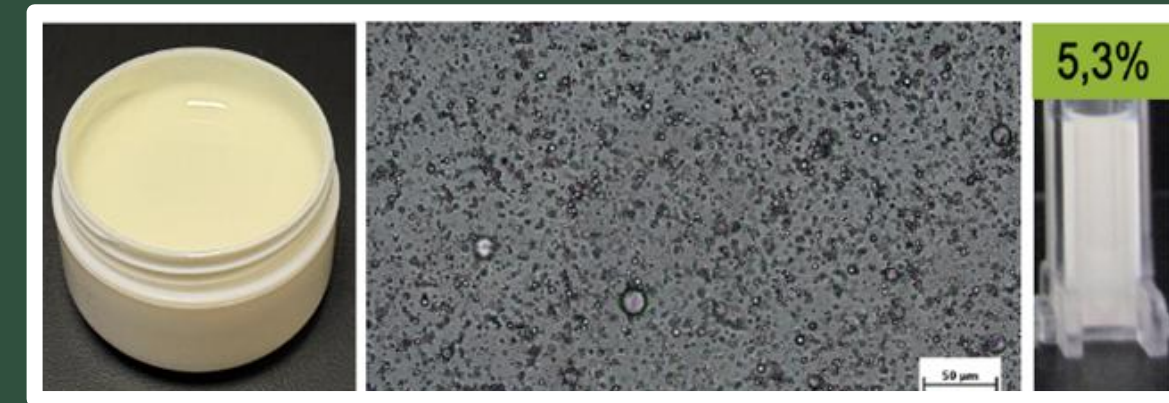
- With EstoLight-1E : Separation index= 5.3%
- With PHS : Separation index= 36.0 %



EstoLight-1E significantly improves the stability of the emulsion



With PHS



With EstoLight-1E

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Customer Feedback



All these dispersants (see INCI below) were used in mineral sunscreen formulation containing exclusively ZnO (15%). These formulas have highlighted that **your dispersant was more effective than the 4 others** (It made the formula more homogeneous and left fewer white marks when applied to the skin).*

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INCI: [Lactobacillus/Brassica nigra seed ferment extract ; Octyldodecyl olivate] ; [Hexyldecanol] ; [Octyldodecanol] ; [Butyloctyl Salicylate].

Organic Sunscreen Formulation



Oil-in-water emulsion

Organic sunscreen formulation

PHASE	INCI	%
A1	Aqua	29.56
A2	Glycerin	3.00
	Pentylene glycol	2.00
A3	Phenylbenzimidazole Sulfonic Acid (solution 15%)	16.67
	Sodium Phytate	0.10
	Lauryl Glucoside, Polyglyceryl-6 Laurate, Myristyl Glucoside	3.00
	Diethylamino Hydroxybenzoyl Hexyl Benzoate (DHHB)	8.50
	Ethylhexyl Triazone (EHT)	4.90
B	Bis-Ethylhexyloxyphenol Methylphenyl Triazine (BEMT)	5.50
	Isopropyl Lauroyl Sarcosinate	12.00
	Hexyl Laurate	10.00
	EstoLight-1E	1.27
C	Polyacrylate Crosspolymer-6	0.70
D	Microcrystalline Cellulose, Cellulose Gum	2.00
	Hydroxyacetophenone	0.50
E	Arginine	0.30
		100,00

Formulation technology

- Emulsion type : Oil-in-water (O/W)
- Organic filters : DHHB (8.5%), EHT (4.9%), BEMT (5.5%)
- Dispersant : **EstoLight-1E (1.3%)** vs PHS

Operating mode

- **Phase A :**
 - Disperse slowly under stirring to thicken the phase aqueous
- **Phase B :**
 - Heat at 75–80°C and stir until filters are completely dissolved
 - Emulsify in A under strong stirring (15 min)
 - Adjust viscosity and pH

Observations & Benefits

- **Fluid** formulation: Estolight-1E (~7000 cP) vs PHS (~10000 cP)
- **Facilitates spreading and penetration**(Reduction of the greasy finish)
- **EstoLight-1E boosts SPF : +74% with EstoLight-1E** vs PHS (Labsphere measurement according to adapted ISO 24443)

Foundation



Water-in-oil emulsion

PHASE	INCI	%
Phase A	Caprylic/Capric Triglyceride	13.000
	Coco-Caprylate/Caprates, Tocopherol	12.000
	Polyglyceryl-6 Polyricinoleate, Polyglyceryl-6 Polyhydroxystearate	4.000
	Hydrogenated Castor Oil/Sebacic Acid Copolymer, Caprylic/Capric Triglyceride	3.000
	Polyglyceryl-3 Polyricinoleate, Polyglyceryl-4 Oleate	2.000
	Jojoba Esters, Helianthus Annuus Seed Wax, Acacia Decurrens Flower Wax, Polyglycerin-3	1.500
	Iron oxides	13.000
	EstoLight-1E	1.455
Phase B	Eau déminéralisée	40.045
	Glycerin	3.000
	Magnesium Sulfate	2.000
	Phenoxyethanol, Ethylhexylglycerin	1.000
Phase C	Glyceryl Rosinate, Aqua, Cellulose, Sodium Sulfate	4.000
		100.000

Formulation technology

- Emulsion type : Water-in-oil (W/O)
- Mineral fillers : 13% iron oxide
- Dispersant : **EstoLight-1E (1.45%)** vs PHS

Operating mode

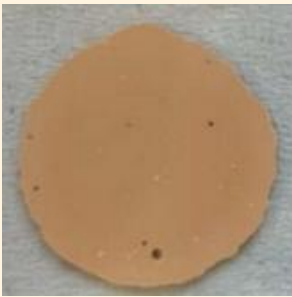
- **Phase A:**
 - Heat at 85°C
 - Stir gently for 15 min
- **Phase B:**
 - Heat at 85°C
 - Emulsify in A under strong stirring (15 min)
 - Add C once the temperature is below 40°C

Observations & Benefits

- Fluid formulation with Estolight-1E vs PHS
- Better dispersion with EstoLight-1E



With PHS



With EstoLight-1E

Shimmering Oil

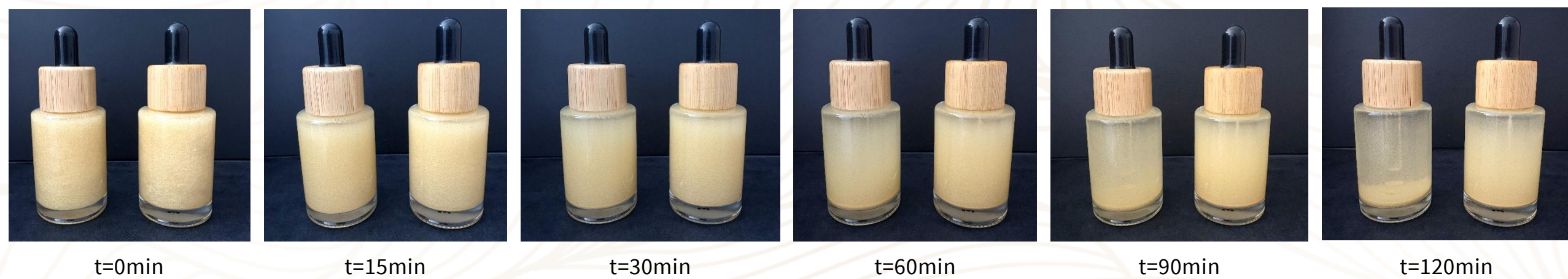


Liquid anhydrous base with dispersed pigment

PHASE	INGREDIENT	NOM INCI	%
Phase A	Caprylic/capric triglyceride	Caprylic/capric triglyceride	58.000
	Sunflower oil	Helianthus annuus oil	24.870
	Dicaprylyl carbonate	Dicaprylyl carbonate	14.000
	EstoLight-1E	Methyl polyricinoleate	2.000
	Mica	Calcium sodium borosilicate, Titanium dioxide	1.000
	Beeswax	Cera alba	0.125
			100.000

Formulation technology

- Anhydrous formulation charged with mica (1%)
- Use of 2% EstoLight-1E compared to dispersant-free formulation

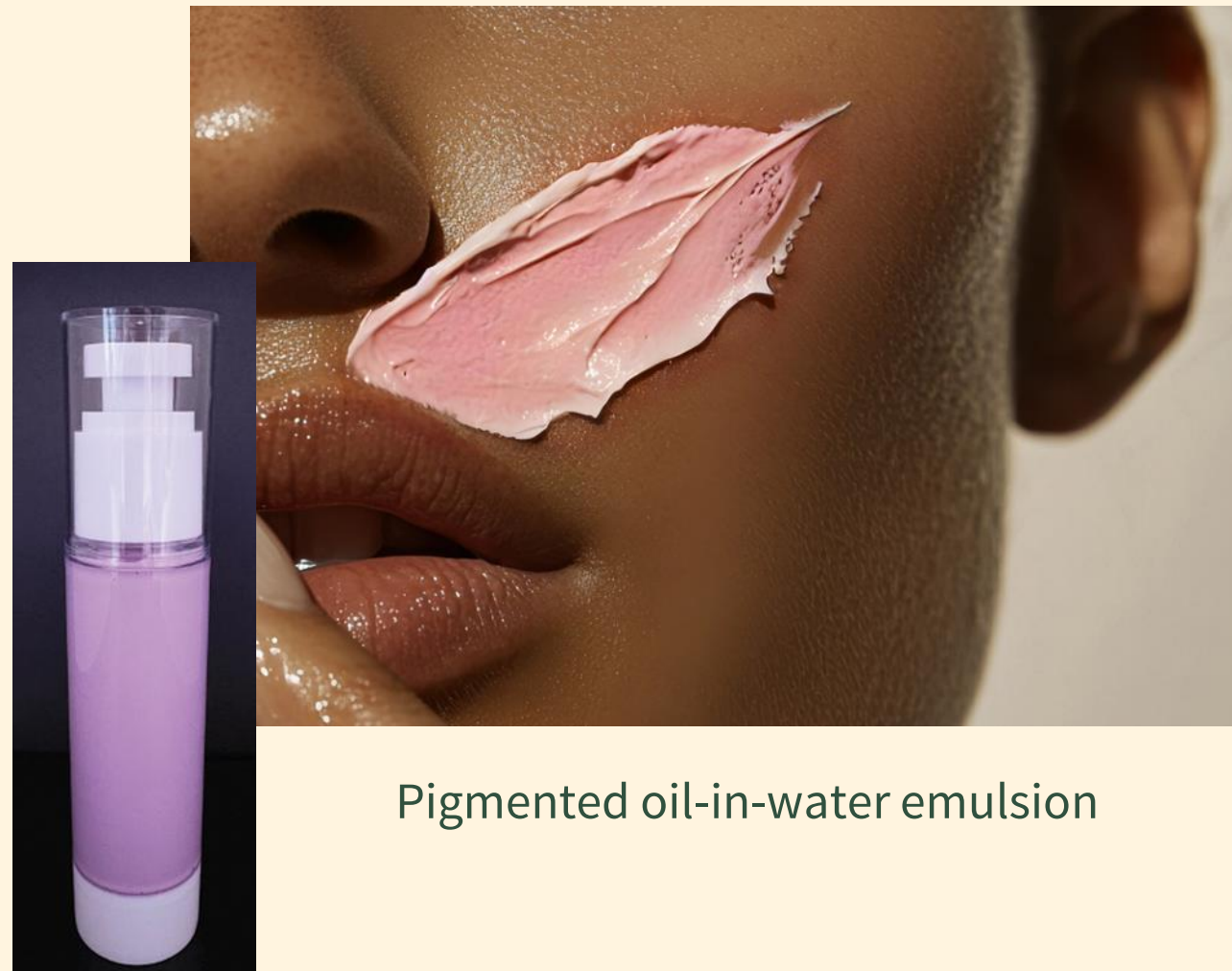


Left: without EstoLight-1E
Right : with EstoLight-1E

Observations & Benefits

- Mineral fillers are maintained in dispersion with only 2% of EstoLight-1E

Pigmented Lotion



Pigmented oil-in-water emulsion

Formulation technology

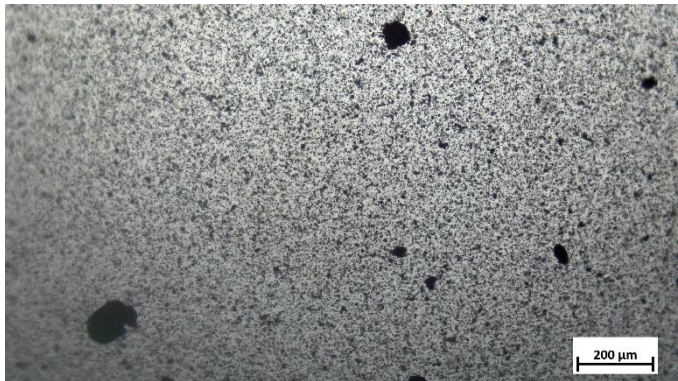
- Pigmented direct emulsion containing 1.0% of EstoLight-1E and 1.5% of pigment

Operating mode

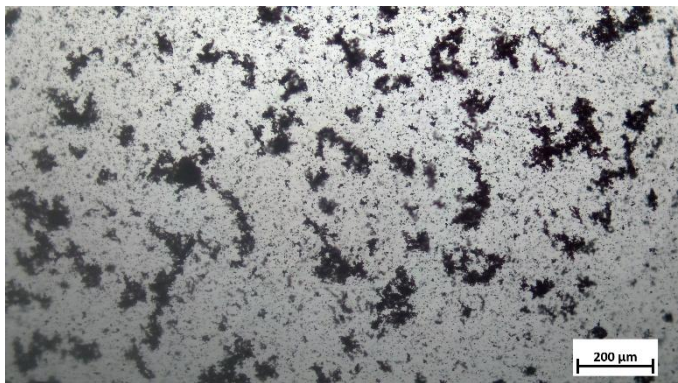
- Phase A:
 - Heat at 70°C and stir during 15min
- Phase B:
 - Heat at 70°C and stir during 15min
 - Emulsify in A under high shirring (Ultra-turrax at 8000 rpm (10 min))

PHASE	INGREDIENT	NOM INCI	%
Phase A	Water	Aqua	63.00
	Glycerin	Glycerin	5.00
	Sisterna SP70C	Sucrose stearate	1.00
	Sepimax Zen	Polyacrylate Crosspolymer-6	0.50
	Potassium sorbate	Potassium Sorbate	0.50
Phase B	Sunflower oil	Helianthus annuus oil	10.25
	Caprylic/capric triglyceride	Caprylic/capric triglyceride	10.25
	Shea butter	Butyrospermum parkii butter	5.00
	Dicaprylyl carbonate	Dicaprylyl carbonate	2.00
	EstoLight-1E	Methyl polyricinoleate	1.00
	Manganese violet, Kaolin	CI 77742	1.50
			100.00

Microscopy of pigmented oily phases



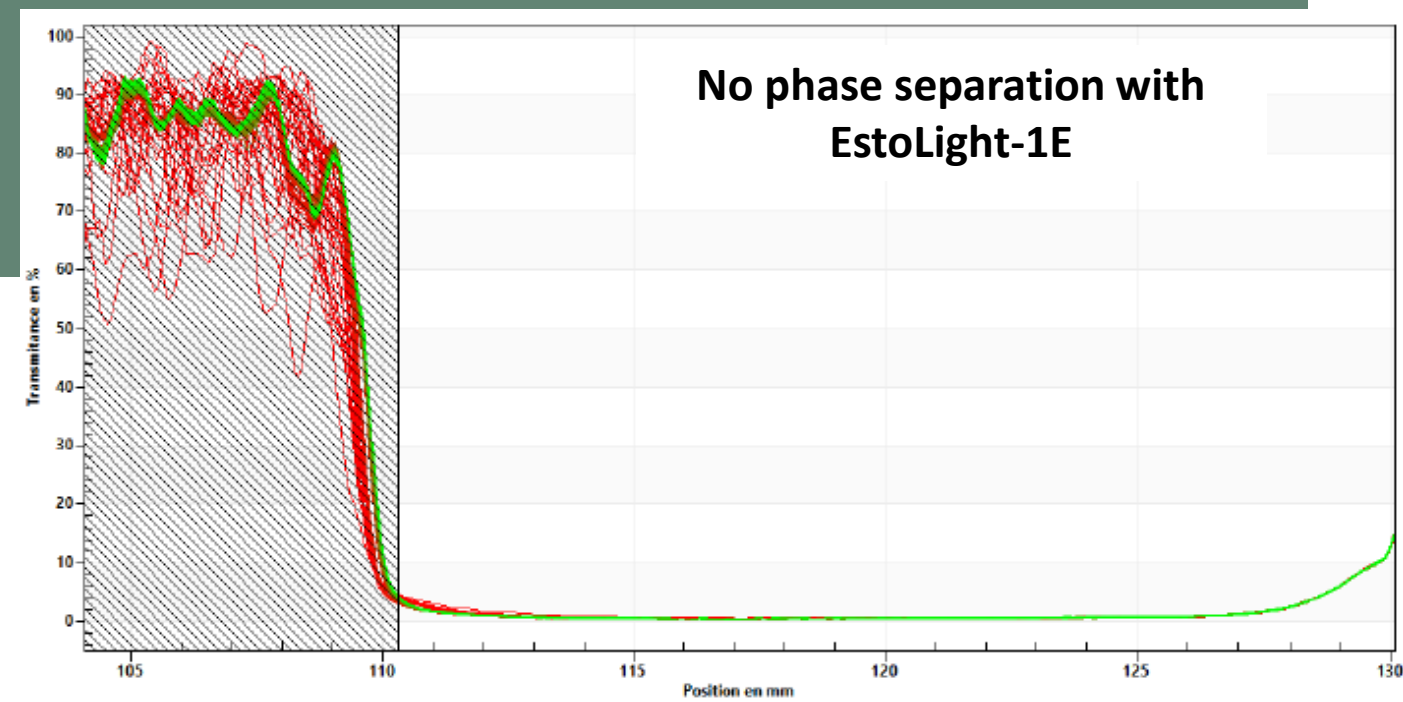
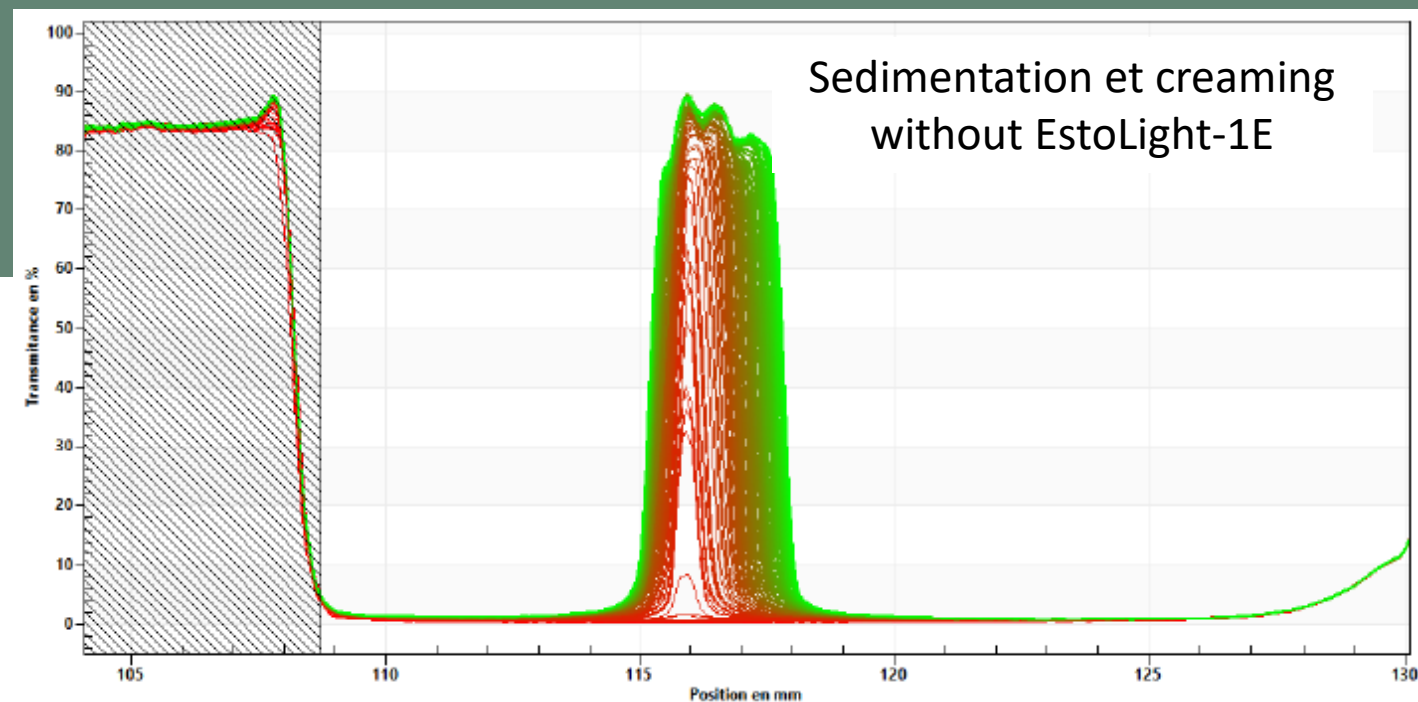
Fine and not aggregated dispersion with EstoLight-1E



Without EstoLight-1E, the dispersion is aggregated

Test & Observations

- Centrifugal accelerated aging test with LUMiFuge: 25°C, 2h, 1000 xg
 - Perfectly stable emulsion with EstoLight-1E
- **Enhanced Homogeneity:** better pigment dispersion
- EstoLight-1E improve the emulsion stability



Without EstoLight-1E



With EstoLight-1E

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**Reminder on the uses of the
EstoLight-1E**

- Function: **Plant-based dispersant**
- Percentage of use: **between 1 and 5 %**
- Usage: **direct and reverse emulsions, anhydrous formulations**
- Percentage of charges that can be stabilized: **variable** (see table below)



TESTED FORMULATIONS	Pigmented dispersion	Mineral sunscreen formulations	Organic sunscreen formulations	Foundation	Shimmering oil	Pigmented lotion
Type of product	Anhydrous	W/O emulsion	O/W emulsion	W/O emulsion	Anhydrous	O/W emulsion
% of fillers	50.0%	15.0-17.5%	DHBB (8.5%), EHT (4.9%), BEMT (5.5%)	13.0%	1.0%	1.5%
% of EstoLight-1E	4.50%	1.30%	1.27%	1.45%	2.00%	1.50%

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